MAY 30, 1960

PAPER TRADE JOURNAL

What Appears To Be The Wisest Design For Low Speed Headboxes?

Thilmany Streamlines Woodhandling Of 600 Cords To 2 Shifts, From 3

Where To Place Finishing's Face On the Totem Pole Of Authority?

Maintenance #17: Getting the Most Out Of V-Belt Drives

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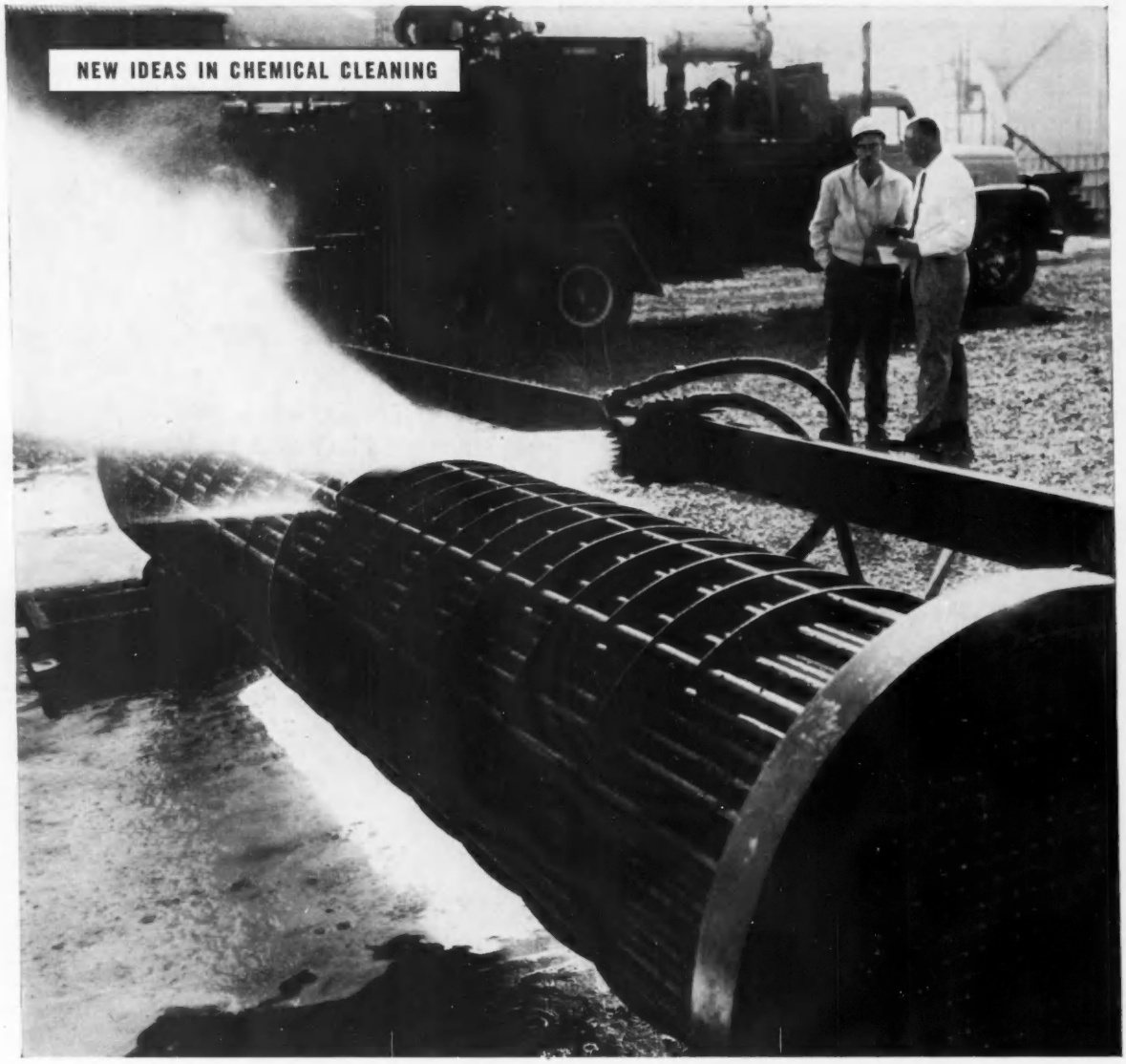

New Jetting Tool To Clean Tube Bundles Saves Thousands Of Dollars

The new high-pressure hydraulic tool, shown above, is currently saving thousands of dollars for companies in the refining, chemical, and petrochemical industries. It is the jetting tool developed by Dowell to remove deposits from heat exchanger tube bundles.

Previous methods of cleaning these bundles have been costly, time-consuming and often inadequate. Many times bundles had to be replaced completely because of the lack of a suitable cleaning method.

This new tool has a remarkable record of thorough, fast cleaning. For example, a slurry reboiler exchanger bundle, three feet in diameter and 16 feet long, was fouled with deposits of coke and asphalt. After being jetted from only one side, the bundle was thoroughly clean. Time required: less than one hour.

The tool holds the bundle in place for cleaning and has flanged rollers for rotation. The jet-head is manipulated automatically so that all tube spaces are covered. The jetted liquid can be either water or chemical solvents.

The new Dow Industrial Service Division will continue to offer the service which was formerly provided through the Dowell Division. For engineered recommendations to solve your cleaning problems contact the field office nearest you, or write Dow Industrial Service, 20575 Center Ridge Road, Cleveland 16, Ohio.

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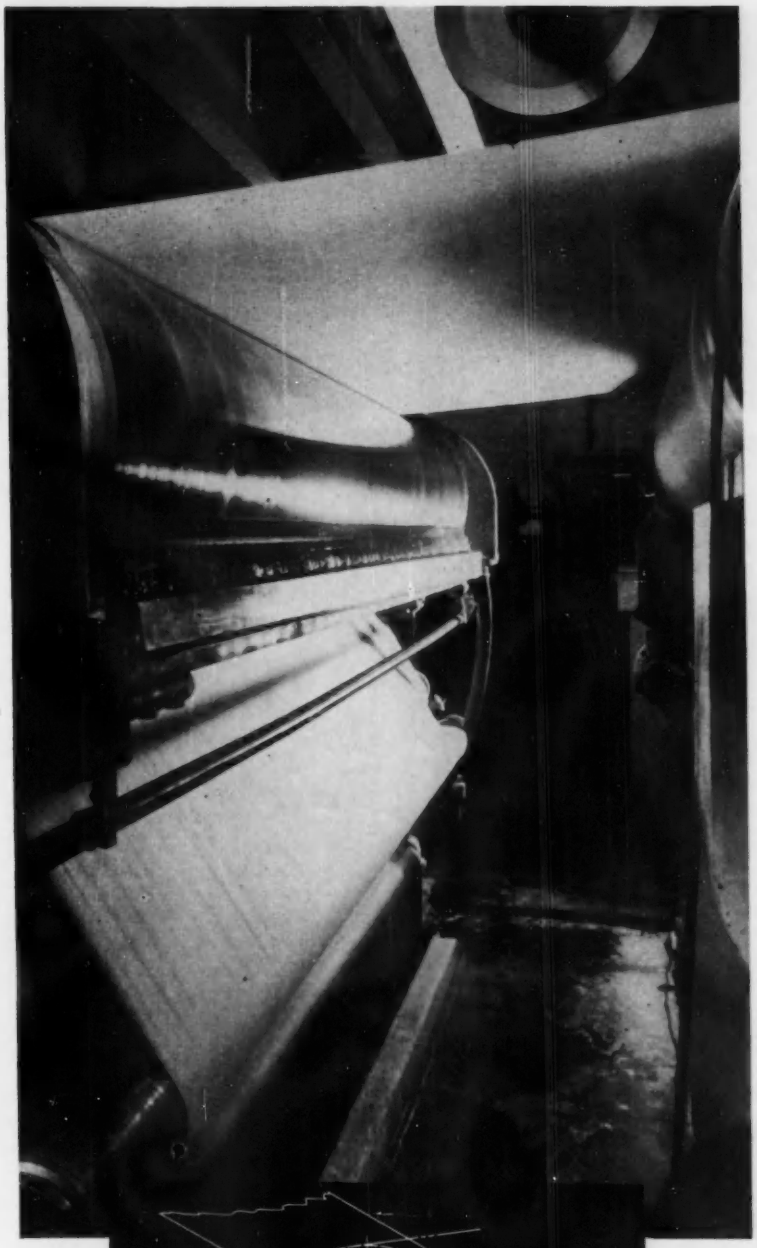


Lodding Press Doctors ride with the roll

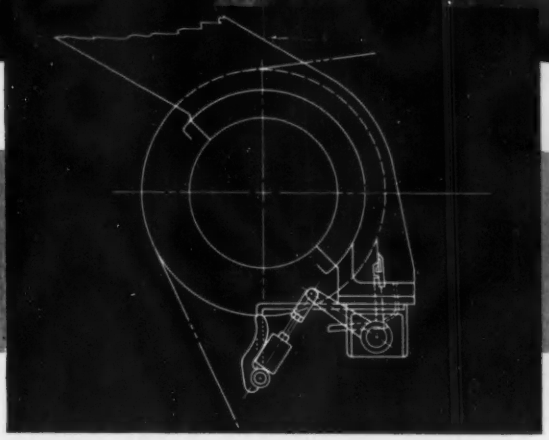
THE MECHANICALLY OSCILLATING top press roll doctor pictured here was custom made for the second press on No. 4 machine at the Sorg Paper Company. It was planed to conform exactly to the crown in the roll. Afterwards, it was optically checked, by means of a special alignment telescope, to make certain it came within critical tolerance specifications.

Mounted on the press arms, this Lodding Press Doctor always rides with the roll — in perfect balance, perfectly aligned with the axis, no matter what position the roll takes. Steady, uniform pressure is exerted by the blade over its entire length with no danger of damaging the roll covering.

Thousands of custom-engineered Lodding Doctors, like this one at Sorg, are performing dependably on all kinds of machine rolls in mills everywhere. That's because each doctor was precision made by specialists for a specific application.

So whether you need doctors for press rolls or any others, from Fourdrinier to reel, you get guaranteed satisfaction in Lodding Doctors.

Get in touch with Lodding or your nearest sales representative for complete information.



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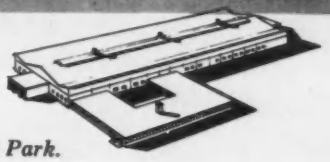

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COMPREHENSIVE STUDY of oversized particles *(left)* using a nest of several screens: namely, 80, 170 and 325 mesh. (TAPPI Standard Procedure T645m)

PARTICLE SIZE TESTS, using a hydrometer method *(right)*, determine particle distribution to about one micron. Analysis of finer particles is made with special centrifuges.

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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Week of MAY 30, 1960 — Vol. 144, No. 22

TRENDS 9

NEWS OF THE WEEK 13

Feature Articles

Thilmany Streamlines Woodroom Operation for Greater Efficiency 20

Recent Developments in Headboxes for Low Speed Paper Machines 24

Let's Raise the Finishing Superintendent from Low Man on the Totem Pole 28

Getting the Best Performance from your V-Belt Drives 30

PAPER PEOPLE 16
OBITUARIES 17
NEWS OF CONVERTERS 18
ASSOCIATION NEWS .. 33
NEW EQUIPMENT & SUPPLIES 34
PRICES OF FIBERS 38
NEWS OF SUPPLIERS .. 42
FIGURES OF THE WEEK 43
CLASSIFIED ADVERTISING 46
ADVERTISERS INDEX .. 50

REMEMBER THESE DATES

June 7-8. Waste Paper Symposium, Conrad Hilton Hotel, Chicago, Ill.
June 7-9. PIMA National Meeting, St. Francis Hotel, San Francisco, Calif.
June 14-16. TAPPI Pulp Bleaching Conference, Edgewater Beach Hotel, Chicago, Ill.
August 22-24. TAPPI Alkaline Pulping Conference, Multonomah Hotel, Portland, Ore.

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Trends

Mills Busy First Half of May

During the first half of May paper mills ran in excess of 97% of capacity and board mills over 93%. This represents little change for paper but an upswing for board. The paperboard mill operating ratio for April was 92%.

Expansion Programs Continue to Mount

Reports of industry expansion continue to pile up. In this issue Kimberly-Clark announces an expansion program for its Niagara, Wis., mill. There is also a report of a new semi-chemical pulp mill for Weston Paper & Mfg. Co. and reiteration of intentions to carry on the project of a new $33 million pulp mill near Bend, Ore., by Brooks, Scanlon, Inc.

Slight Drop in Merchant Sales

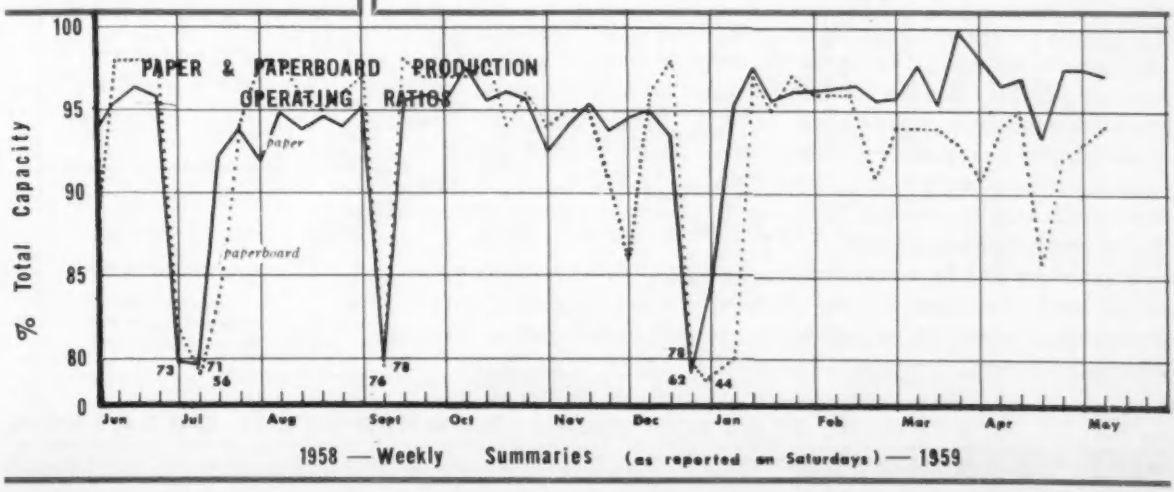
Merchant sales of wrapping and fine papers were off in April. Fine papers were down 2.5% from the same month in 1959 and wrapping papers were down 2.1%.

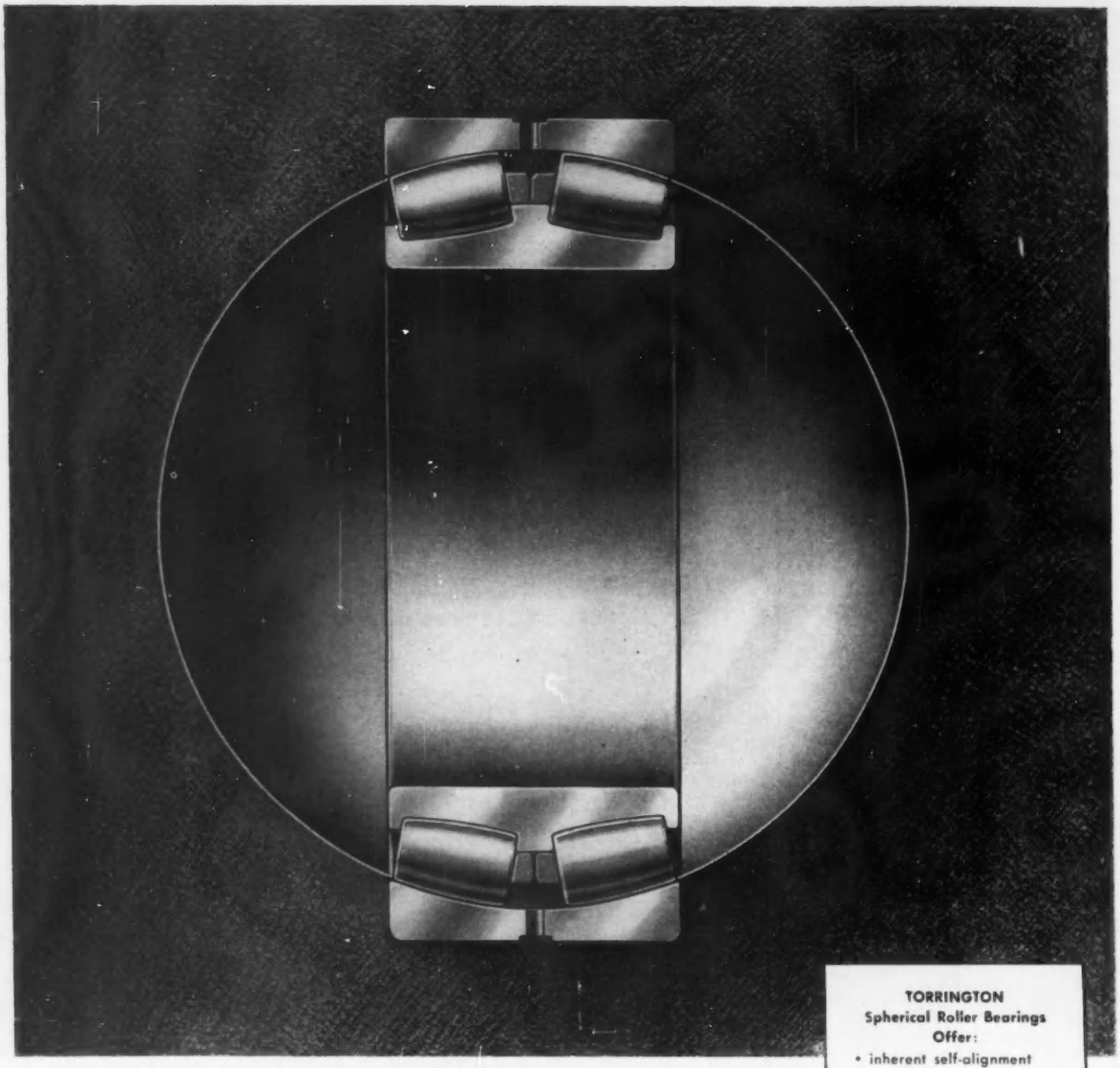
Wood Pulp Imports Vary by Country

U. S. imports of wood pulp for the first quarter of 1960 are up 1% over the same period last year. The picture by countries of origin is as follows: Sweden —22%, Finland —6%, Norway +164%, Total Europe —12% and Canada +4%. There is no record of any receipts from Russia or the Iron Curtain countries during this period.

Waste Paper Markets Slightly Improved

Waste paper market conditions are said to be improving slightly in view of increased paperboard activity. However mixed papers are said to present a serious problem with some burning or dumping reported. Corrugated prices are off $2 per ton along the Atlantic seaboard.





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PAPER TRADE JOURNAL

WEEK OF MAY 30, 1960

A. G. SHARP, left, senior vice president, and W. W. Cross, vice president of sales, industrial products, Kimberly-Clark Corp., locate the site of a newly announced expansion program on an aerial photo of the company's Niagara, Wis., mill. (See story on page 14.)

Westvaco Holds Over 50% of USE Stock

West Virginia Pulp and Paper Co. reports that it has acquired "well over 50 per cent" of the 1,024,055 shares of voting stock of United States Envelope Co.

David L. Luke, president of West Virginia, said a tally from four depositaries in New York, Boston, Chicago and San Francisco indicated that his company had acquired "more than enough" shares for legal and actual control of United States Envelope.

At the time of its offer West Virginia already owned about 25 per cent of the voting stock of the envelope company and indicated it would seek a majority position to block a proposed merger of U. S. Envelope into Hammermill Paper Co.

Puget and Hopper Paper Plan Merger

Plans for merging Hopper Paper Co. of Taylorville, Ill., with Puget Sound Pulp & Timber Co. of Bellingham, Wash., have been announced by Lawson Turcotte, president of Puget, and Bertrand C. Hopper, president of Hopper.

The boards of directors of both companies have unanimously approved the merger agreement subject to approval of the shareholders who will be asked to vote on the proposition in June.

Hopper Paper Co., founded in 1922, with executive offices at Taylorville, operates three paper manufacturing plants located at Taylorville and Reading and Modena, Pa., producing annually 45,000 tons of high grade fine printing and writing papers. They will be operated as a division of Puget and it is anticipated there will be no change in Hopper's management or policy.

Puget operates a pulp mill in Bellingham producing annually 170,000 tons of bleached sulphite pulp for the market. Puget also manufactures tissue papers, paperboard, industrial alcohol and other by-products. It has sawmill operations in British Columbia and owns one-half interest in the Ketchikan Pulp Co., Ketchikan, Alaska.

Bend, Ore., Pulp Mill Still Possible

According to Brooks Scanlon, Inc., officials, the termination of the proposal for acquisition of this company by MacMillan Bloedel and Powell River Co. (See P.T.J., May 23) does not put an end to the proposed pulp mill near Bend, Ore. Plans are still proceeding for a $33 million pulp mill said Freeman Schultz, v-p and general manager of Brooks Scanlon.

New NSSC Pulp Mill For Weston

A new 150-ton-per-day, semichemical pulp mill will be constructed at the Terre Haute, Ind., plant of Weston Paper & Mfg. Co. by the Rust Engineering Co., Pittsburgh, Pa.

The new pulp mill will be designed by Rust to utilize hardwood to replace the present straw pulp mill. Pulp output will be used in the company's containerboard plant. The actual construction will start in June. The pulp mill, including a new wood yard and wood room facilities, is scheduled to be put in operation in 1961.

Expansion Planned at South African Pulp and Paper

South African Pulp and Paper Industries now has a big interest in Cellulose Products, Pty., which makes tissue and cellulose wadding in bulk for all processes and consumers of these commodities. In collaboration with Kimberley-Clark Corp., this factory is being modernized so that high-grade products can be made.

BENJAMIN C. HANSEN, of Chester, Pa., adjusts the scale model paper machine he was responsible for in the U. S. Exhibit at the Casablanca International Trade Fair in Morocco, April 28-May 15. An employee of Scott Paper Co., he was assigned as their representative in the Government Exhibit at the Fair.

K-C Expansion Program Gets Under Way

Kimberly-Clark Corp. has announced the start of an expansion program that will, it is believed, make its Niagara, Wis., mill the world's largest producer of coated publication and catalog papers under one roof.

W. R. Kellett, president, said the program will include the installation of a new coated printing paper machine and the construction of additional mill facilities adjoining the existing plant. Construction will get under way immediately with start-up of the new machine scheduled for January 1, 1962.

The new production unit will be equipped with Kimberly-Clark's own trailing blade process, the newest development for coating quality printing papers, it was reported.

Mr. Kellett said the expansion was required by the continued growth of the graphic arts industry and to meet the increased demand for the company's quality printing papers.

The new 170-inch wire machine is designed to run at speeds up to 2,000 feet per minute. Its production capacity is in excess of 50,000 tons per year. The new unit will bring the production capacity of the four-machine Niagara mill to approximately 500 tons per day.

Construction of a 100,000 square foot addition to house the new operation is to begin immediately. Also to be expanded are the mill's groundwood operations, woodroom, boiler house and water treatment plant.

St. Croix Reports New Record Operation For 128 Hours Of No. 4 Paper Machine

St. Croix Paper Co. of Woodland, Me., reports that its No. 4 paper machine, operating at a speed of 2085 feet per minute on newsprint, with a 22 per cent sulphite furnish, ran 128 hours continuously with no breaks and no lost time during the week ending May 1. On April 25, the 206-inch Beloit machine, which first made paper in December 1957, was started up at 9:30 a.m. following Sunday repairs and Monday morning wire change, to run continuously until 5:30 p.m. on Saturday, April 30. From the time the paper was first turned onto the reel spool at exactly 9:30 a.m. on Monday, until a stock lump on the end of the sheet caused a break in the press section late Saturday afternoon, a web of paper 190 inches wide and 3033 miles long passed over the machine to establish a new record for operating performance in this mill and to challenge the high speed newsprint machines of the world.

Prior to the shutdown for maintenance repairs on Sunday, April 24, the machine had further extended this record by running 66½ hours without a single web break.

Fine Paper Production in Canada Shows Gain

Canadian fine paper production and shipments gained in March and the first three months.

Output for the month was 26,571 tons, up 14.2 per cent from the year ago figure of 23,274 tons. To the end of March production gained 6 per cent at 72,694 tons as against 68,549 in the same period last year.

Total shipments in March were 26,369 tons, as against 23,363 tons last year. Included in this year's total were exports of 1,693 tons, up from 1,427 tons in March 1959.

Fine paper shipments in the first quarter totalled 74,054 tons up 9.9 per cent from the 67,394 tons shipped in the same three month period last year. Exports for the quarter, included in these totals, were 4,601 tons against 3,860 tons a year ago.

Coated paper output during the quarter was 8,522 tons and shipments were 8,541 tons. In the same period last year output was 8,029 tons and shipments were 7,803 tons.

Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending May 14, 1960, at 97.1 per cent compared with 97.3 per cent, revised for the preceding week. The ratio was 97.6 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending May 14, 1960, at 94 per cent, compared with 93 per cent for the preceding week and 96 per cent for the corresponding week a year ago.

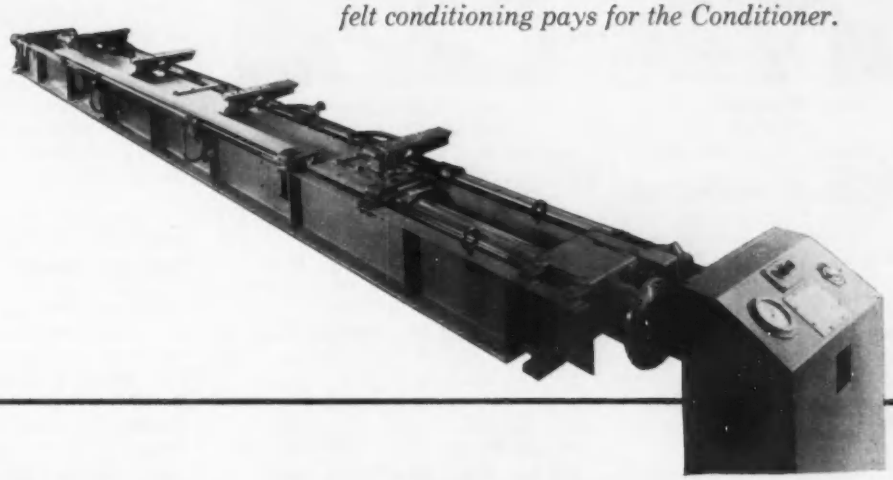
(Detailed statistics on page 43)

What About YOUR Press Felts?

Are they being kept continuously in condition by modern design, traveling header, hydraulically driven, panel controlled VICKERY FELT CONDITIONERS like this?

Whether or not your felts are so wide and so fast running that they need a Conditioner like this, they *do* need the continuous conditioning provided by a modern Vickery Conditioner. There is a size and type for every press felt on new machine or old.

Ask us to show you how quickly modern felt conditioning pays for the Conditioner.



What About YOUR Wet Felts?

Vickery Wet Felt Conditioners, applied to top and bottom felts, reduce cylinder machine shutdowns and slowdowns, prevent crushing, reduce shower volume, almost always lengthen felt life. They, too, quickly pay for themselves. *Ask us to prove it.*

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PAPER PEOPLE

W. E. Caldwell

T. C. Davis

St. Regis Announces New Posts for Two

St. Regis Paper Co. announces the appointment of William E. Caldwell as senior vice president of its Cornell Paperboard Products Co. Division and general manager of the Cornell operations at Milwaukee, Wis. He succeeds Arthur Miller, who will retire from this position on July 1. Mr. Caldwell is presently resident manager at Pensacola.

T. Cecil Davis, presently assistant treasurer of St. Regis, has been named resident manager of the St. Regis mill at Pensacola, Fla., to succeed Mr. Caldwell.

Mr. Caldwell joined St. Regis in 1939 as chemical engineer at the Panelyte plant in Trenton, N. J. He was made plant manager in 1948. Mr. Caldwell was appointed resident manager of the Panelyte plant and paper mill at Kalamazoo, Mich., in 1954. He was named resident manager at Pensacola in 1956.

Mr. Caldwell received his B.S. degree in chemical engineering from the University of Virginia in 1938.

Mr. Davis joined St. Regis Paper Co. (Canada), Ltd., a subsidiary of St. Regis, in June 1948 as comptroller. He was named assistant treasurer of the parent company in July 1959 and transferred to the New York office.

Prior to joining St. Regis, Mr. Davis had been assistant comptroller of Canadair, Ltd., and comptroller of Bruck Mills, Ltd. He served with the Royal Canadian Air Force from 1940 and 1945 and was Group Captain.

Scott Ups Five in Chemical Research Div.

Scott Paper Co. has announced the promotion of five members of its Chemical Research Division.

Edward A. Wodka has been promoted to the position of research group leader. Mr. Wodka, a graduate of Columbia, class of 1948, joined Scott in 1957 after previous experience in the research field.

James F. Farber has been promoted to research project leader. A 1954 graduate of Clarkson College of Technology, Mr. Farber joined Scott in 1958 as a research engineer.

Jerome M. Gess has been promoted to research project leader. Mr. Gess attended C.C.N.Y. and received his Bachelor's degree in chemistry from the University of Illinois in 1956. He joined Scott in 1957 as a research chemist following experience in fields related to chemical research.

William P. Logan has been promoted to assistant research engineer. Mr. Logan joined Scott in 1958 as an assistant engineer in chemical research and is currently working towards a mechanical engineering degree at Drexel Institute.

John R. Ryan has been promoted to pilot plant operator from his previous position of laboratory assistant. He joined Scott in 1959 and is currently studying for a degree at Pennsylvania Military College Evening Division.

Westvaco Announces Promotions in Covington

James G. Thompson has been promoted to the post of assistant to the research director at the Covington Research Laboratory of West Virginia Pulp and Paper, effective July 1.

He will fill the position being vacated by James W. Byerly who was recently promoted to staff engineer with the pulp mill department in Covington.

Mr. Thompson is a graduate of Purdue University where he earned his master's degree in industrial management. Previously, he was granted a bachelor's degree in forestry at the same university. He joined Westvaco in 1958 as a member of the Bleached Board Division administrative service department.

Eastern Names Lewis To New Post

Appointment of Emerson Lewis as staff assistant to the division manager has been announced by Frank A. Knight, division manager, Eastern Fine Paper and Pulp Division, Standard Packaging Corp., Bangor, Me.

Joining the Eastern organization as a management trainee following graduation from Bowdoin College, Mr. Lewis became assistant sulphite superintendent at the Lincoln, Me., mill in 1949. He was promoted to sulphite superintendent at Lincoln in 1954. In 1958, he was named Eastern's manager of materials handling, continuing in that post until his current promotion to staff assistant to Mr. Knight.

Daily Joins Allied As Senior Vice President

J. D. Daily, former manager of Riegel Paper Corp.'s Wilmington, N. C., mill, has been named senior vice president of Allied Paper Corp.

Mr. Dailey began his paper industry career in his hometown of Bogalusa, La., with Gaylord Container Corp., now a division of Crown Zellerbach Corp.

Following successive employment with North Carolina Pulp and Paper Co. (now a division of Weyerhauser Timber Co.), Brompton Pulp & Paper Corp. and Kimberly Clark

Corp. in Canada, he was transferred by Kimberly Clark to its new division, the Coosa River Newsprint Co. in Alabama, to help start and operate that mill. He joined the Riegel Paper Corp. in 1951.

Container Corp. Reassigns Three Vice Presidents

Leo H. Schoenhofen, senior vice president, Container Corp. of America, has announced new assignments for three of the company's vice presidents and their transfer June 1 from present locations to the company's main office in Chicago.

Thomas F. Cass moves from the San Francisco office to Chicago. Most recently in charge of boxboard mills and carton plants on the West Coast and in Texas, he will now be responsible for all of Container's folding carton operations and for its Sefton Fibre Can Division.

Harry E. Miles will now be in charge of all corrugated operations. His headquarters were formerly in Louisville, Ky., where he has been responsible for the coordination of national sales policies in the company's corrugated shipping container division, and all corrugated container operations except on the West Coast.

Frederick S. Crysler, will be responsible for all the company's paperboard mills — including linerboard, boxboard, and corrugating medium —and for the Pioneer Paper Stock Co., a Container subsidiary. He is being transferred to Chicago from Philadelphia, where he has been in charge of the company's Brewton, Ala., mill and of all boxboard mills east of the Rocky Mountains.

OBITUARIES

Wesley C. Ahlgren, 57, secretary-treasurer of Bird & Son, Inc., since 1946, died suddenly on Saturday, May 14 at his summer home in Osterville.

Mr. Ahlgren joined Bird & Son, as assistant auditor July 1, 1926, and in 1946 was elected secretary-treasurer of the company. He was secretary-treasurer of Bird Machine Co.; vice president and treasurer of the Berry Refining Co., Chicago; treasurer of the George W. Dinsmoor Co., Lawrence; and a director of Bird & Son, Bird Machine Co., Berry Refining Co., Norfolk County Trust Co., Arrow Mutual Insurance Co. of Newton and Bird-Johnson Co. of South Walpole.

PUMPAGE

Goulds reports on trends in pulp and paper

ON THE BLEACH. More than one bleach mill has told us their stock and filtrate pumps in stainless steel have been in service for fifteen years or more—without replacement of the original casing. By using standard pumps, most mills avoid the cost of inventorying special pump parts. Spare rotating parts for their chlorine and hypochlorite bleaching pumps are the same as those on standard stainless steel trimmed pumps already in use at most mills. We can usually ship pumps and parts in 316-standard immediately from stock. We pour 317 for chlorine dioxide to order. The right kind of stainless makes the difference in giving you long, low-cost service. Contact your Goulds man for help in making your selection.

DIGESTER CIRCULATING . . . WHICH PUMP? Whether circulating in continuous or batch digestors, your pumpage is the same—hot, corrosive, highly abrasive. For best service life and lowest long-run costs you need *all* these: (1) Extra-thick casings with generous corrosion allowances, (2) Water-cooled bearings, (3) Fully open impeller with ejector vanes on back side adjustable externally to compensate for wear, (4) Back pull-out design with spacer coupling for easy dismantling, (5) In and out stuffing box flushing connections. Goulds Model 3138 measures up to these standards. Available with or without spring-loaded bedplates. For detailed bulletin, drop us a line.

WHEN PUMPS WEAR . . . IS IT EROSION, CORROSION, OR BOTH? Corrective measures depend on knowing one from the other. In our data section 766.8, you will find a series of photographs that make it easy for you to identify the cause of internal pump damage. A postcard request will bring you your free copy.

OBSERVATIONS

ON FIRST COST VS. FINAL COST

By E. D. Schwandt, Assistant Chief Engineer, Goulds Pumps

The current tight money situation lies behind the closer look at first cost.

First cost is definitely important, but a *true* analysis of pumping costs must also include other cost factors—such as power consumed and maintenance required. In too many cases, the first-cost saving in buying competitive-design equipment is offset within the first year or two of operation by machine downtime and costly repair.

On the basis of our experience with mill installations (including both competitive- and custom-design pumps), we feel replacement, power, and maintenance costs can be minimized by buying first-grade pumps. Experience proves that a quality pump is often the one that is *least expensive in terms of cost per million gallons pumped.*

Whatever the cost considerations—long-term or short-term—let us help you engineer the pump best suited to your job.

Goulds Pumps, Inc., Dept. PT-50, Seneca Falls, N. Y.

GOULDS PUMPS

PTJ NEWS OF CONVERTERS

CONTAINER developed for Wilson Sporting Goods Co. by Packaging Corp. of America.

High Speed Photographic Reproduction On Corrugated Containers Reported

A new advance in corrugated container printing — high speed photographic reproduction from mechanically made 50-line screen plates — has been tested successfully and is now in use, reports Packaging Corp. of America.

The new technique opens a number of doors for merchandising with corrugated board which previously were closed to this medium, according to Robert G. Paramore, senior vice president, container operations. The development brings corrugated shipping containers closer to the varied merchandising opportunities available with folding cartons, he said.

First broad application of the new photo-printing process is the development by Packaging Corp. of America of an entire new family of packages created for Wilson Sporting Goods Co. to help introduce its new "famous player" sports gift packs late this spring.

The pictures are clear and sharp, with excellent reproduction of facial details to make all of the players instantly recognizable. Containing 50 vertical lines per inch, the photographic plates, made of a newly developed synthetic rubber material, enable container printers to do a great deal more than was possible with hand made wood cuts and Ben Day screens. The plate-making process is a patented process of James J. Matthews Co., of Pittsburgh. The new synthetic rubber material which made the advance possible is called Fibre-Mate. Similar to other synthetic rubbers used in corrugated container printing in most of its characteristics, Fibre-Mate has this critically important difference: It contains a built-in quality which permits almost 100 per cent release of printing inks.

Other synthetic rubber materials used for printing plates retain much ink, preventing its use in a highly concentrated form. With the new material, however, printing results are achieved not from the volume of ink used, but from its color strength, or concentrated intensity. This makes possible high speed printing of much greater precision than was possible previously.

Because ink coverage can be controlled much better with a thinner and more intense ink, it is possible to print a finer screen, providing finer definition and better detail. With the new technique, 70-line screens also are fully practical. Four-color work also is completely practical and "beyond the experimental state," Mazur reports.

Packaging Corp. of America engineers add that the new plates developed by Matthews have printed as many as one-half million containers without the slightest damage. The new printing technique is entirely suitable for the company's existing printer-slotter equipment.

Merz to Head Department In Con Can R&D Division

Edmund H. Merz has been appointed director of the Materials Formulation and Evaluation department of the General Packaging Research and Development Division, Continental Can Co.

Dr. Merz will head the department's work on surface coatings, inks, adhesives, polymer formulation and processing as well as analytical services in accordance with the needs of the six product divisions located in the General Packaging Research and Development Division. These products include flexible packaging, fibre drums and corrugated boxes, boxboard and folding cartons, paper containers, metal closures and plastic bottles.

Frye Manufacturing To Build in New Windsor

The Frye Manufacturing Co., producer of carbon papers, plans to build a $270,000 factory in New Windsor, near Newburgh, N. Y.

Cornish Containers Appoints Vice President

Appointment of Joseph L. Robinson as vice president of Cornish Containers, Inc., has been announced by Edward Cornish, Jr., president and general sales manager. Mr. Cornish said Mr. Robinson will assist him in sales activities and supervise plant operations.

Mr. Robinson joined the firm three years ago. A native of Toledo, he attended schools in Arizona, New York and the Canal Zone.

Mr. Cornish also announced that the Carpenter Paper Co. with headquarters in Omaha, Nebr., and plants throughout the West has been named as the company's representative in the western part of the United States.

Formed in 1950 as Melcor Industries, the firm is a major manufacturer of insulated containers and accessories, primarily for use in the frozen food field.

Atwood to Manage New I-P Framingham Plant

Appointment of Howard N. Atwood, Jr., as manager of International Paper Co.'s milk container plant now under construction at Framingham, Mass., has been announced.

Mr. Atwood, who joined the company in 1952, previously had served as the division's New England sales representative with headquarters in Boston. Prior to joining International Paper, he was associated with the Creamery Package Manufacturing Co. of Boston.

At the same time, appointment of Raymond E. Cihak as plant superintendent for the Framingham operation was announced. Mr. Cihak has been with I-P since 1952, when he joined the company as a quality supervisor, and most recently has been covering the New England area from Single Service's Philadelphia plant.

Construction is well under way on the new 50,000-square foot plant which will be located on the Massachusetts Turnpike in the Framingham Industrial Center. The installation will have a rated capacity of approximately 35 million Pure-Pak paper milk containers monthly when it starts operations during the summer of 1960.

Sanderson Elected Birge President and Director

Ivan C. Sanderson of London, England, has been elected president and a director of the 126-year-old Birge Co., Inc., of Buffalo, wallpaper manufacturer. Mr. Sanderson is president of Canadian Wallpaper Manufacturers, Ltd., of Toronto, Ont., which purchased the Birge concern in September last year.

Mr. Sanderson, also president of the Sanderson Co. in London, succeeds Neil D. Gough as president of Birge. Mr. Gough resigned early this year.

H&D Appoints Regional Engineer

Appointment of Gilbert C. Robinson as regional engineer for the Hinde & Dauch Division, West Virginia Pulp and Paper, has been announced. Mr. Robinson will make his headquarters at H&D's Chicago, Ill., plant.

In his new position Mr. Robinson will undertake engineering projects in regard to H&D's equipment and buildings at the division's Chicago, Kansas City, Kans., and St. Louis, Mo., plant locations.

Mr. Robinson is a graduate chemical engineer and comes to the H&D Division with some nine years' experience in research and production gained at West Virginia's Mechanicville, N. Y., Covington, Va., and Williamsburg, Pa., paper mills.

Joseph Perrotti

Perrotti Joins Huxley As Vice President

Joseph Perrotti has become vice president and a director of Huxley Envelope & Paper Corp., 137 Varick Street, New York 13, N. Y.

Until recently Mr. Perrotti was sales manager and assistant secretary of Tension Envelope Co. He has spent his entire career in the envelope business and is widely known throughout the industry.

Lone Star Container Forms New Subsidiary

John W. McLeod, president of Lone Star Container Corp. in Dallas, has announced the formation of a new subsidiary, Lone Star Stapling Corp.

The new firm will be located with the parent company at 8804 Chancellor Row. Marshall K. Lightfoot Jr. will head the company as general sales manager. The firm will handle all sizes of stapling machines, staples, wire, stitching, shipping containers and supplies.

PAPER TRADE JOURNAL is always mailed on Friday and should be received in most parts of the country early in the week. If there seems to be undue delay in receiving your copy, we suggest that you write your local postmaster, with a copy to the postmaster at East Stroudsburg, Pa., where we mail, and a copy to us.

O-M Packaging Division Names V-P, Marketing

Angus J. Gardner has been named vice president for marketing of the Packaging Division, Olin Mathieson Chemical Corp.

Mr. Gardner was formerly vice president in charge of sales for Rice Barton Corp., Worcester, Mass. He joined that company in 1952 after 16 years with Great Northern Paper Co. where he was assistant sales manager.

Mr. Gardner, who will make his headquarters in New York, succeeds Arthur T. Safford, who recently was named corporate director of marketing.

I-P Bagpak Division Names Asst. General Manager

R. R. Worthington has been appointed assistant general manager, Bagpak Division, International Paper Co.

Mr. Worthington, who joined International Paper as a chemist in 1934, has been a member of the Bagpak sales staff since 1936. He was appointed divisional sales manager in 1954.

Heco Elects V-P; Appoints Chicago Sales Mgr.

Heco Envelope Co. announced the election of Henry M. McLaughlin as vice president and the appointment of Frank C. Sowa as Chicago sales manager. Mr. McLaughlin has been with Heco 36 years and Mr. Sowa 20 years.

Con. Can Division Names Southern Regional Manager

H. Merrill Goodwyn has been named southern regional manager for the bag and paper operation of the Containerboard & Kraft Paper Division, Continental Can Co. Mr. Goodwyn will headquarter in Dallas and supervise sales offices in that city, Atlanta, New Orleans and Southern Pines, N. C. He replaces James H. Quinn, who has resigned from the company to go into business for himself.

William Donaldson, formerly a Pacific Coast sales representative for the division, succeeds Mr. Goodwyn as Dallas district sales manager.

Billy M. Googe has joined the company as a salesman in the southeastern region, operating out of the Southern Pines office.

Hot pond where one member of crew keeps logs moving to jackladder. Diesel electric crane places logs in pond.

Thilmany Streamlines Woodroom Operation for Greater Efficiency

Expansion of barking and chipping equipment and some new innovations allow this mill to produce in two shifts the same amount of chips that had previously required three shifts.

Paul D. Van Derveer,
Associate Editor

A highly efficient woodroom operation has been the result of a recent expansion and modernization program by Thilmany Pulp and Paper Co. The woodroom incorporates several significant innovations in equipment and design and allows four men on two eight-hour shifts to do the same amount of work previously done by three shifts of five men. Six hundred cords of wood per day are barked and chipped in two shifts in this operation.

Located in Kaukauna, Wis., on the Fox River, this is an integrated kraft mill manufacturing a widely diversified line of specialty paper products. Among the products are asphalt, polyethylene and wax treated protective papers; trademarked, print-decorated and embossed papers; converting and wrapping krafts, wet strength paper; plus retail and industrial specialty bags. Mill facilities include a 300-ton pulp mill operating five rotary digesters, a 100-ton bleach plant, seven paper machines and a large, varied converting operation.

Changes in woodroom equipment noted by Paul H. West, pulp mill superintendent, and Lowell Schmidt, pulp mill engineer, included:

- Addition of a new 12 x 65 foot barking drum.
- Lengthening an existing 12 x 45 foot drum to 65 feet.

• Addition of a new 110 inch, 15 knife chipper.

• Elimination of all chip screens.

• Replacement of chain conveyors (except jack ladder and bucket elevator) with belt conveyors.

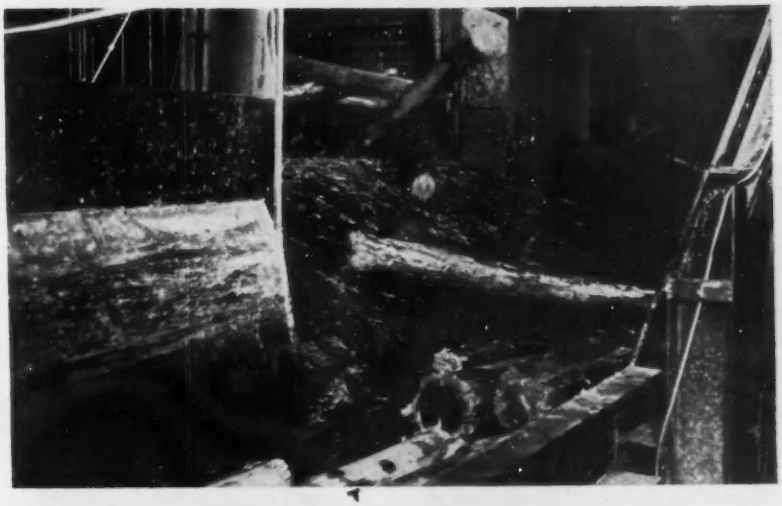
• Use of a "five finger" log control system actuated pneumatically by which an operator controls the flow of logs to the chipper.

Use 100-inch Logs

Thilmany obtains its wood supply from a wide area, receiving jack pine from the Lake States and Canada, lodgepole pine from Montana, and Ponderosa pine from the Black Hills area of South Dakota. Brought in by rail car, the 100-inch logs are stored in a large, neat wood yard. The mill is unique in that it successfully handles, barks and chips these double-length logs. In fact, Thilmany pioneered the use of 100-inch logs in 1950 and has realized several advantages. There has been less blooming of the logs, better barking and more uniform chips plus a savings by eliminating the saw kerf.

Logs are moved from storage or rail car by 40-ton diesel electric cranes with a grapple bucket taking bites of 1¼ cords and placing the logs into a hot pond, 50 feet by 250 feet in size. Holding 200 cords, the pond is heated by waste water from the evaporators. One worker is located here at the hot pond and controls the flow of logs to the jackladder.

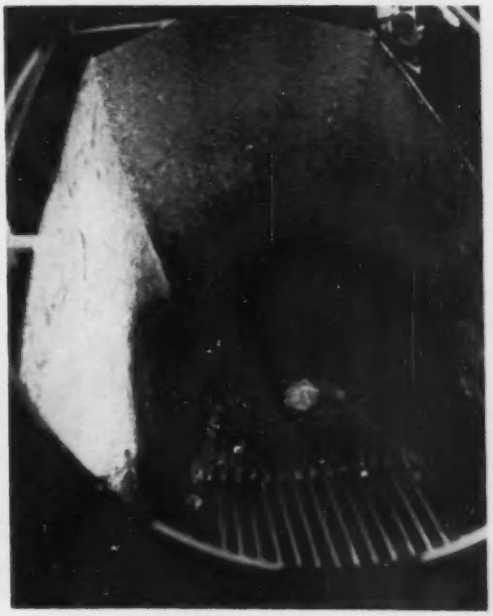
Another worker is stationed at the jackladder which carries the logs up an incline and then drops them onto



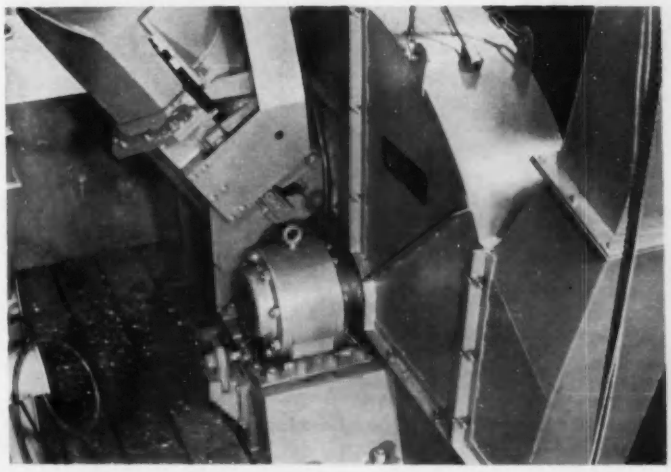
Barked eight-foot logs tumble out of barking drum onto a collecting belt carrying them toward chipper.

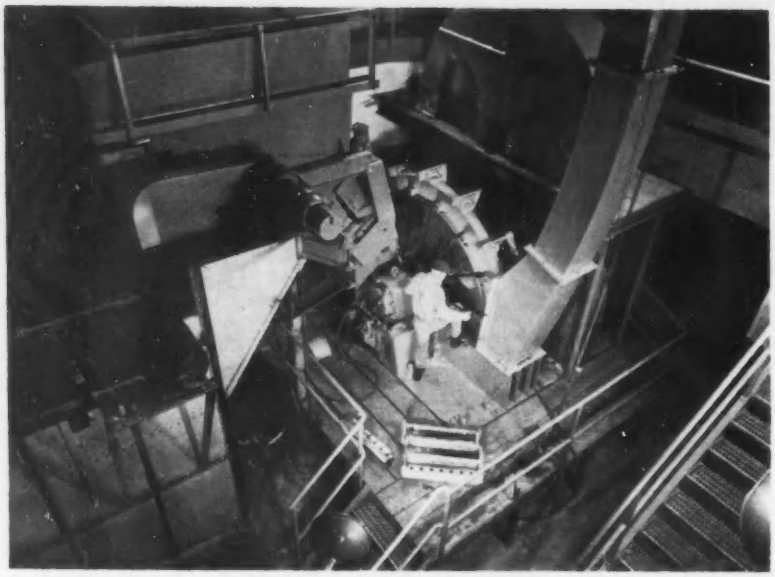
Worker operates five finger log control to prevent jamming of chipper. The fingers, controlled by push button, are operated individually, so that any single finger or any combination may be utilized.

Unusual picture, taken with aid of mirror, shows small diameter logs in chip spout. Design of trough permits effective chipping. ►



▼ Chip spout has expandable section as shown here in case of jams from oversize logs.





Chipper knives being replaced. Worker behind chipper loosens holding bolts while other worker changes blades. Duct curving from near side carries chips to cyclone.

a rubber belt conveyor feeding the first barking drum. A second jackladder, which forms an extension of the first, is fed when a hinged drawbridge is lowered to cover the infeed conveyor to the first drum. It then feeds wood to the belt conveyor to the second drum. The two drums, in parallel, are fed alternately with the pneumatically operated drawbridge swinging down, then up, approximately every three minutes.

The drum barkers are 12 feet in diameter by 65 feet long with the first 45-foot section of each powered by a 200-h.p., 720-r.p.m. motor and the last 20-foot section by a 100-h.p., 720-r.p.m. motor. The drums revolve at seven r.p.m. and in the 20-foot section of each the logs can be showered with waste evaporator water at the rate of 400 g.p.m. Each barker holds about 22 cords of wood and processes about 25 cords per hour. A chain flight conveyor located between the drums transports bark which has been removed to a hog and it is subsequently used as fuel.

Five Finger Log Control

Barked logs tumble out of the drums onto a 36 inch wide collecting belt, traveling towards the chipper at 180 f.p.m. This conveyor is followed by a feeder belt which carries the logs to the chipper spout at 225 f.p.m.; the boost in conveying speed helps to separate any jam-up of logs.

Between the collecting and feeder belts is the aforementioned five finger log control station where a flat steel plate supports the logs while passing from one belt to the next. Five solid steel bars (or fingers) 4 inches by 4 inches in cross section project through this plate to a height of six inches when in a raised position. When lowered, the tops of the bars fit flush with the top of the plate and permit free passage of the logs. The bars, or fingers, are raised pneumatically when actuated by push button, and may be raised individually or all at once, depending upon the operator's judgement of how completely flow should be restricted. With this five finger station, the quantity of logs being fed to the chipper is quickly controlled. The job is made easier by the elimination of picaroon work which would otherwise be necessary.

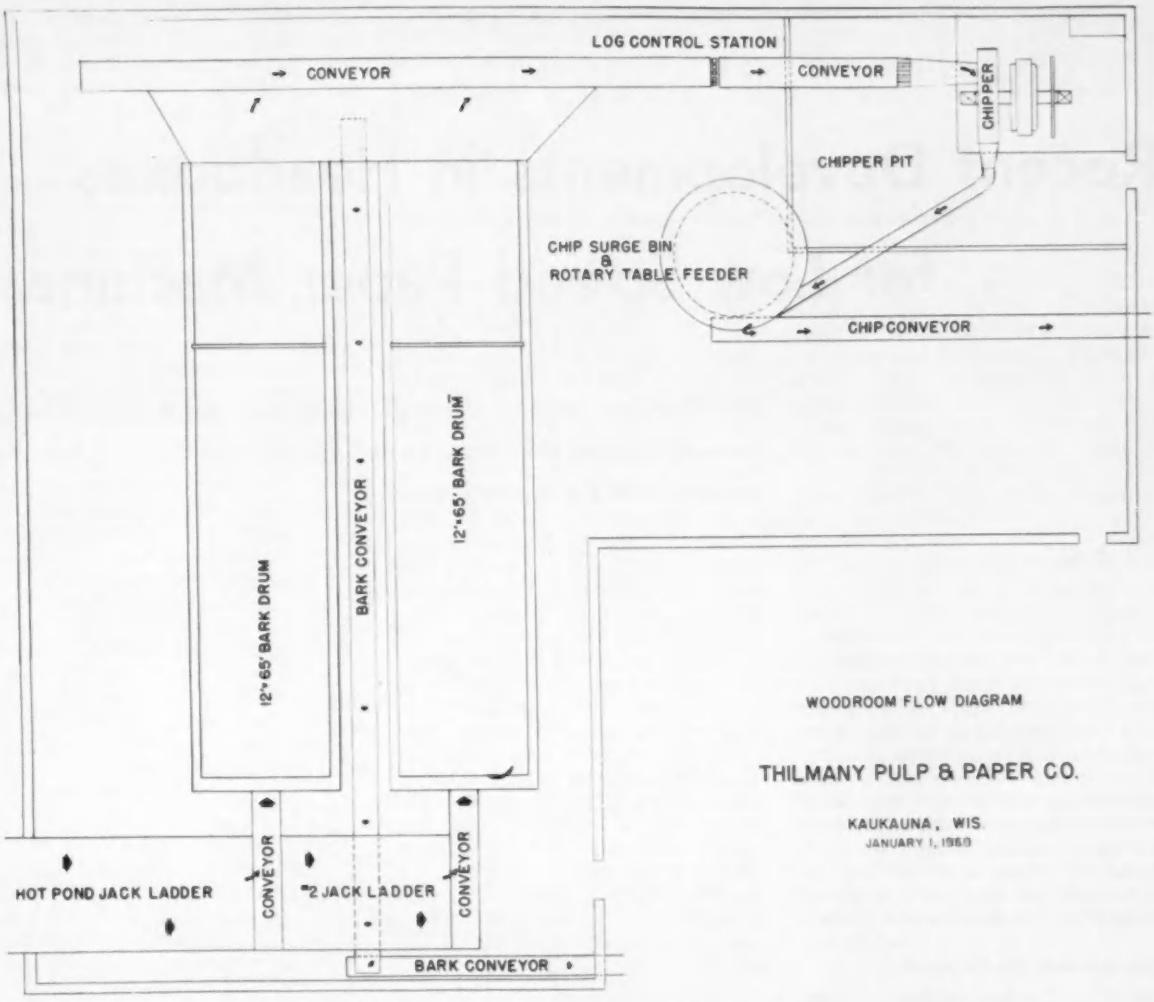
The operator at the log control station also can control forward and reverse movement of the collecting belt from this position and can stop the feed belt in case of jams or other difficulty. Other controls are located here for the chipper and for the gates on the barker. Oversize logs are prevented from entering the chipper spout by an electric eye tied into the feed belt circuit.

No Chatter from Chipper

The eight-foot logs are fed to the chipper through a spout which will take logs up to 24 inches diameter. The spout is expandable to 26 inches in case of jams from oversize logs. The spout leads to a V-trough to the chipper knives. The trough is off center to permit effective chipping of small diameter wood, which is in the majority, with the result that more uniform chips are obtained. The 110-inch chipper has 30-inch blades and is powered by a 1250-h.p. motor (with 300 per cent overload capacity) which turns it at a constant speed of 327 r.p.m. The chipper blower housing is designed so that the bottom half has a replaceable liner.

Chipper knives are usually replaced daily while bed knives are changed weekly. In order to speed up the knife change which is accomplished in about 40 minutes, the

Rotary plate feeder at bottom of surge bin carries chips to inclined trough conveyor. Cyclone is directly above surge bin.



chipper is equipped with a large disk brake. Two men make the knife change, one using a pneumatic impact wrench on the backside loosening the holding bolts while the other changes blades on the front side.

No Halt to Operation

Modernization of the woodroom was conducted while the already existing woodroom equipment was in continuous operation to keep up with daily production. An especially difficult part of the of the job was to blast a pit, 25 feet wide by 37 feet long by 10 feet deep, out of the bed rock foundation while the woodroom was in operation. The huge chipper is located in this pit, and from it, chips are blown through a duct to a 10-foot diameter cyclone. In a horizontal run of 28 feet, the duct rises 30 feet to the cyclone from which the chips drop into a 17-foot surge bin of five minutes retention time. The bin has high and low level indicators which start or stop a 13-foot diameter rotary plate feeder at the bottom. A certain minimum level of chips is necessary to maintain the seal as the chips are blown to the cyclone.

The rotary plate feeds an inclined trough conveyor belt, 30 inches wide, carrying chips to a bucket elevator. The bucket elevator, in turn, carries the chips about 55 feet vertically to another conveyor belt which feeds five chip bins located directly above the mill's five rotary digesters. Both the inclined trough conveyor and the bucket elevator had to be modified to increase chip capacity over the initial design. The inclined trough conveyor was speeded up to 427 f.p.m., while the bucket elevator was increased from 130 to 150 buckets.

Streamlined Woodroom

Engineering and design work for this modern, streamlined woodroom was done by Thilmany's engineering department. It is noteworthy that they have succeeded in their efforts to produce a uniform chip of good quality while eliminating some equipment and procedures that have been considered essential. There is no sorting of logs; no log splitting is done; chip screens have been eliminated; and neither logs nor chips are recirculated.

SUPPLIERS OF PRINCIPAL EQUIPMENT

Barker	Fibre Making Processes
Barker motors	General Electric
Chipper	D. J. Murray
Chipper motor	Marathon Electric
Conveyors, rotary plate feeder	Link Belt
Lubricating equipment on barkers	Lincoln Engineering
Log control, cyclone and surge bin	Thilmany Pulp & Paper Co.
Rubber belting	Voss Belting and Specialty Co.

Recent Developments in Headboxes for Low Speed Paper Machines

The low rate of flow through the boxes and the low heads present special problems in design and operation at speeds around 500 f.p.m. or less.

E. J. Cole

Research and advances in headbox design for slow speed machines (under 500 f.p.m.) have not kept pace with developments in headboxes for high speeds. Headboxes on slow machines in use today are either based on old designs or are modifications of the new high speed designs to fit the particular requirements of low speed operation. These requirements are quite different and present special problems which are discussed below.

Flocculation Big Problem

Due to the low production rates of low speed machines, the rate of flow through the headbox is low. This, of course, makes the formation of flocs in the headbox likely as the fibers are not in sufficiently strong shear fields to pull apart if they should touch and collide. This flocculating tendency is enhanced by the fact that the drainage capacity of the wire sections of the slow machines is limited by a combination of short wire lengths and low drainage due to the smaller table roll diameter and the lower suction which these develop at such low speeds. The tendency to flocculation is rendered stronger when making heavy basis weights since the headbox consistencies must then rise. The use of long fibered stocks at these high consistencies, such as is often the case with specialty machines, again increases the chances of flocculation occurring.

These tendencies were offset on the old machines by the long forming time available because of the slow speeds, which was made use of by the use of shake. The use of shake is of little use beyond 900 f.p.m. and its effectiveness is related to the product of its amplitude and frequency.

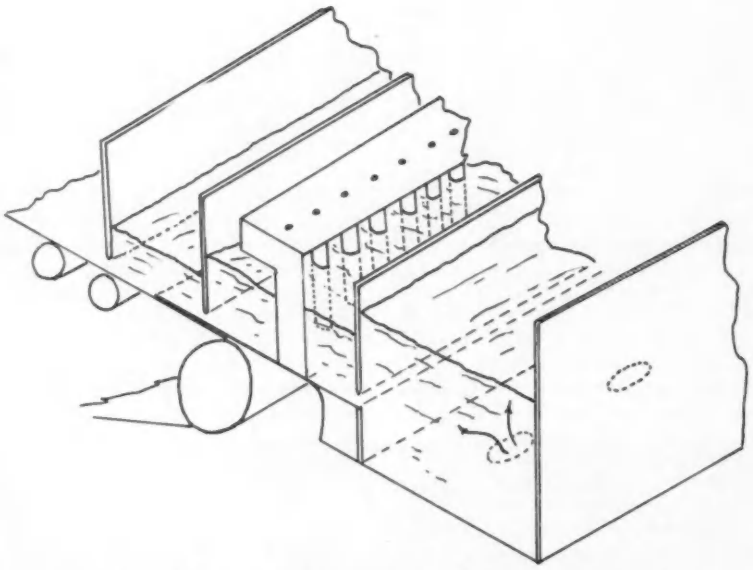


Figure 1. Old type low speed headbox with double straight dam type slice.

Low Head Imposes Restrictions

Since the head needed to give a jet speed for the slice that is at the same speed as the wire, varies with the square of the wire speed, very low heads are required for low speeds. These low heads in themselves impose a greater restriction on design because often the range over which a box is expected to operate may prevent the use of perforated rolls for deflocculating purposes. The actual configuration of the boxes in regard to the disposition of baffles, etc. is also frequently determined by the speed range. For machines in the very low speed range, the head to be carried may be so low that the normal projection slice cannot be used.

Distribution System Very Important

The fact that the design of headbox is for low speeds on the best hydrodynamic principles may be dif-

ficult because of the restrictions imposed by the low head, makes the manifold or distribution system very important. Previously because of the long flow time available in the low speed headbox, little attention was given to the design of the inlet to it, since the disturbances introduced then had time to die down. Low speed headbox inlets of the old type do not merit a separate discussion. They usually consisted of either an expanding hopper from a single pipe or a number of pipes running into the first compartment of the headbox. Probably the greatest headbox improvement possible in any low speed mill is that obtainable by the installation of a suitable adaptation of one of the high speed distribution systems. Care must be taken in making such an adaptation, however, because of the low flow speeds in the approach piping that may be encountered.

In addition to the low head imposing design restrictions because a small change in head at these speeds means a considerable change in the speed of the slice jet, it is essential that the head be controllable and measurable to a very high degree of accuracy. The exact slice opening must be accurately known for all the various grades made.

Apron in Place of Forming Board

With low speed operation a forming board is not necessary because even if there is a discharge down the face of the breast roll, the suction developed is so low that wire wrap is easily prevented by using the normal wire tensions. Instead of a forming board, a flexible rubber or plastic apron is used. This in itself introduces two operating difficulties. Firstly, the bottom apron of the headbox must be so shaped that the flexible apron cloth can fit snugly into it. There are various methods of fastening the apron cloths but almost all have, to some degree, a tendency to pick up fibers. It would take too long to describe all the various methods that are in use but in general any method employing a fastening mechanism such as screws or tacks which gives any projection into the flow must be avoided. The best method is some form of split apron board with the apron fitting in the split and secured from below. Secondly, it is always difficult to know exactly where the apron should end. This is in fact the low speed analogue of the high speed breast roll discharge problem. If the apron projects to a point on the center line of the table roll following the breast roll, then a discharge will take place on this roll forming a portion of the sheet rapidly and so affecting final sheet properties. If the apron ends either well before or well after the first table roll, then a more gradually formed sheet results, corresponding to those obtained on high speed machines with formation which is slowed up by the forming board.

The relative positioning of the upper lip with the lower lip, and in the cases where there is no apron cloth, of the lower lip with the breast roll, is even more important than in high speed operation. Generally, on low speed machines it is not possible to move the breast roll relative to the bottom lip because the breast roll is part of the shaking mechanism, and this is one of the reasons why the use of the apron cloth, with all its disadvantages, is still popular.

High speed headboxes always run at the same slice width between the deckles; for many machines in the very low speed range, however, the deckle on the wire is varied, and this, of course, makes the construction of a scientifically designed headbox impracticable.

Having discussed those factors pe-

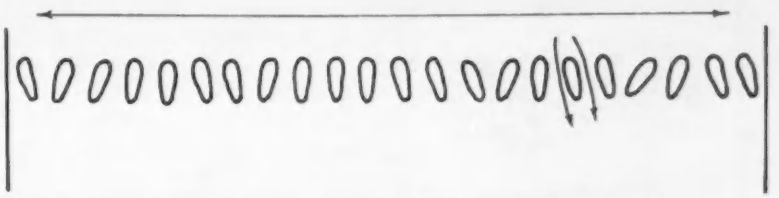
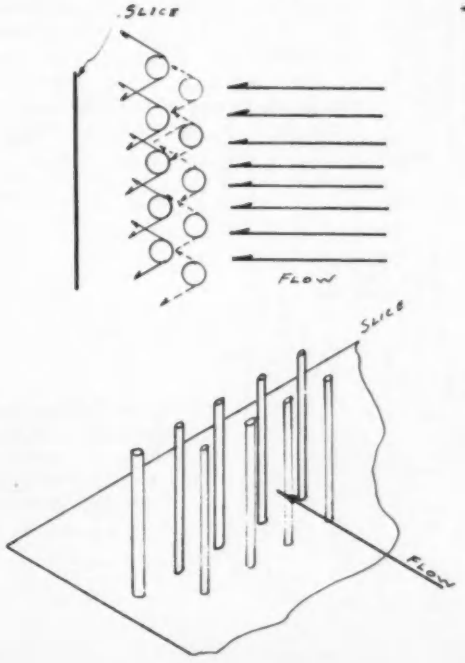


Figure 2. Diagrammatic arrangement of "soldiers" in old type flow box.



◄ Figure 3. "Picket fence" as used in low speed headboxes to even out flow.

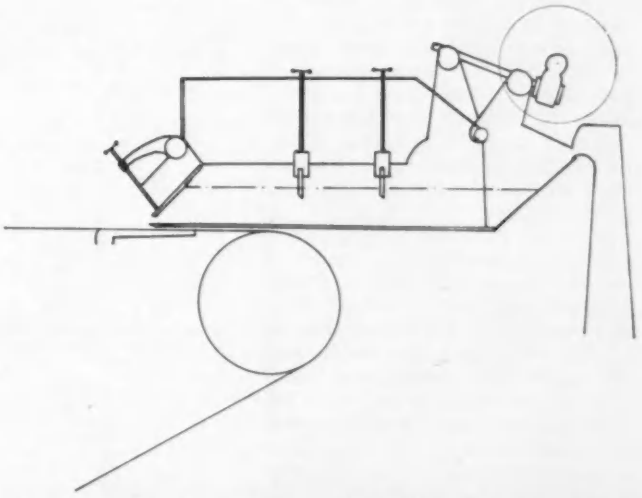


Figure 4. Modern form of low speed headbox with combination of projection slice and prior double dam slice.

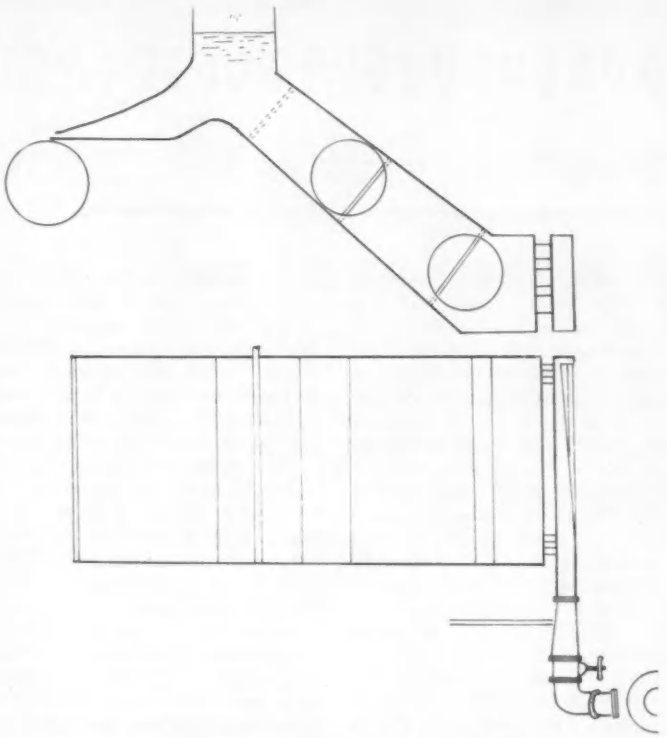


Figure 5. Low speed headbox depending on initial distribution by means of a tube sheet and tapered manifold with overflow.

culiar to low speed operation, six headboxes, considered to be typical of those in use in the low speed range are now considered.

Double Straight Slice Box

The oldest type of low speed headbox is that with the double straight slice or dam type such as that shown in Figure 1. In such a box, following the inlet from the first compartment by means of pipes or a hopper the flow passes under a baffle and then through a number of pins or soldiers forming a picket fence. Rotation of these soldiers (see Figure 2), so that either the long or short axis is opposed to the flow, corrects defects in the flow originating in the inlet. Frequently there are two baffles prior to the soldiers.

Another variation of the soldier principle is the use of a double of obstructions as indicated in Figure 3, forming a "picket fence." With this construction the wakes from alternate rows cross and create complete turbulence downstream which gives effective mixing and evens out irregularities resulting from a poor initial distribution system. When used, such a device is installed in a headbox immediately following the first compartment.

With the double straight slice type of box, turbulence is also created by having the baffles down far enough. Thus the level of stock in relation to the wire decreases from compartment to compartment. The biggest level drop is at the first of the two slices. The apron continues to a point between the two slices but stops short of the first table roll while the second of the two slices is positioned over the centerline of the first table roll. Using a box of this type formation actually takes place in the very short distance between the end of the apron and the second slice. The remainder of the box is simply an inefficient carrying and equalizing system made necessary by the initially poor distribution.

Other Box Variations

Figure 4 shows a more modern form of the same construction embodying a combination of projection slice with prior double slice arrangements and using an apron the end of which lies over a forming board. If provided with a satisfactory initial distribution system, this type of box is the best for very low speed operation. Due to the small size, the same efficiency of distribution as for high speed operation is needed, but if this is achieved, the turbulence, maintained by the straight slices with the flow as rapid as possible, is sufficient to minimize flocculation while the projection slice gives control of basis weight distribution.

Another type of low speed box is shown in Figure 5. In this case there are no turbulence inducing baffles but a good distribution is obtained by means of a tube sheet forming a variation of the one sided inlet principle. Instead of the baffles, there is a long convergence provided for the slice so that the flow is under control. Such a design might be expected to be very successful for low speed operation for medium and short fibers. If a plate is used instead of the tube sheet some difficulty with flocculation might be expected if consistencies are high and fibers long with heavily beaten stock. This type of inlet was first constructed by Gavelin as a modification of Mardon's taper flow principle. (U.S. Patent 292 9449)

Boxes for Range of Speeds

Figure 6 shows one type of headbox for a range of speeds. Here the

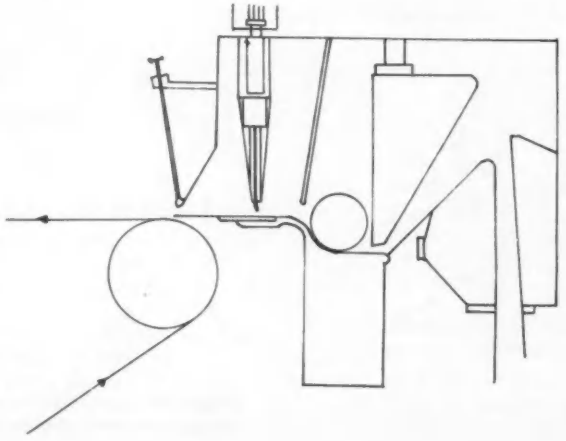


Figure 6. Lowspeed headbox for a range of speeds with perforated roll below slice level.

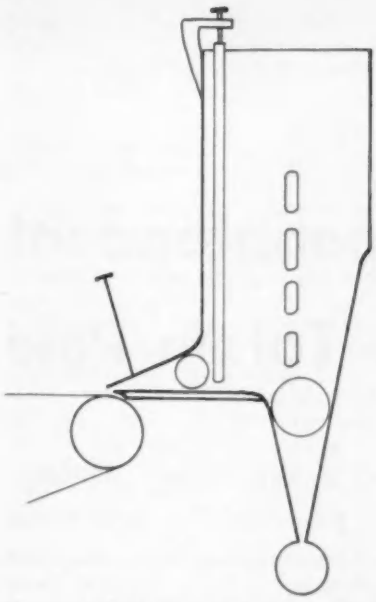


Figure 7. Medium speed range open headbox typical of those attempting to obtain a range of speed by using split baffles.

difficulty of using a perforated roll at low speeds is overcome by the practice of having part of the headbox pond below wire level. The stock then flows below a baffle and under a vertical slice that is adjustable across the width, finally leaving the headbox below a normal projection slice. Again, provided the distribution system is satisfactory, such a box may be expected to work well.

Figure 7 in included as typical of low to medium speed range boxes. The perforated rolls are of small diameter so that a reasonably low head may be run. The final baffle is to provide an evening out effect and the prior split baffles are to keep the flow turbulent at all levels in the box. Generally, operating a box of this kind is not satisfactory over the entire speed range and is extremely dependent on the control of the distributing system.

A Vacuum Box

Figure 8 provides an illustration of the attempts made to use vacuum in an enclosed box with an air space over the pond level. The use of vacuum in this space has the effect of reducing the effective head and so enabling the low speeds to be run whilst having a height of stock in the box greater than the theoretical head for the speed of the machine.

Such designs suffer from two major disadvantages: First, the speed of flow through the box is so slow that flocculation almost invariably occurs and the rolls are not sufficient in themselves to break this up, since dependence for flow distribution is placed in this case not on the acceleration of speed of flow through the holes but on the currents set up as the roll rotates. Secondly, it is very difficult with the vacuum arrangement to secure the precise control of the effective head that is needed.

Conclusion

Thus, in conclusion, it would seem that the best solution to the problem of low speed headbox design is to use the best and most modern distribution or inlet system available. This then permits the use of a well designed box, such as the modern adaptations of the old low speed boxes. The use of a flexible apron is recommended provided that it is properly fixed. Generally, in reviewing low speed designs, it may be said that the boxes have not yet been made as compact as the present day efficient manifold systems will allow.

There is need for applied research in this field to make maximum use of already existing data obtained from studies of high speed headboxes.

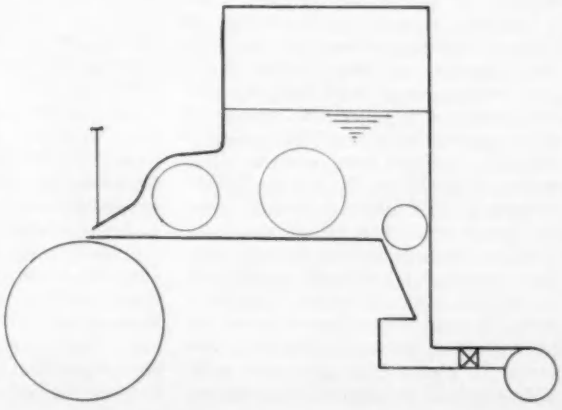


Figure 8. Low speed headbox using vacuum chamber to reduce the effective head behind the slice.

Something Can Be Done About Finishing—VII

Let's Raise the Finishing Superintendent From Low Man on the Totem Pole

The finishing department and its supervisory personnel warrant equal status with the papermaking department in fine paper mills. This idea has proven advantageous in companies that have tried it.

Progress was made recently when some companies decided that the finishing superintendent should have equal voice in policy making with the paper mill superintendent. Prior to this, the finishing department foreman reported to the paper mill superintendent with the result that requests for improvements were too often given second place. Also, the finishing foreman frequently was required to salvage the mistakes of the papermaking department. The companies, which have recognized that there are advantages to the separation of the two departments up to management level, have made substantial progress in reducing finishing costs.

Two Very Different Types of Functions

First, let us look at the type of operation carried out by each department. The papermaking department is a continuous process operated 24 hours each day with fixed crews. It requires skilled artisans and little labor with a great deal of chemical and physical testing by technicians; whereas the finishing department is an intermittent process operated variable numbers of hours per day with variable numbers of small crews. The largest percentage of the finishing employees are engaged in unskilled labor or operating small unit production machines which can be started and stopped frequently. The production materials and supplies required are greater in number, and also are subject to variation more frequently. The large number of employees per ton produced and the common usage of incentive wage payment plans requires special attention to human engineering. We submit, therefore, that there is a vastly different type of experience which is required to operate the finishing department than is required to operate the paper machines. The superintendent of the latter is always an artisan or technical type whereas a good leader with industrial engineering background is the new concept of a finishing department superintendent.

Like a Good Customer

Next, let us explore some of the advantages of treating the finishing department like a good customer. As a matter of fact, it would not be surprising in the future to see large companies separating their operations at the paper machine reel into two separate establishments. There are advantages in establishing a finishing department in the center of the market to which parent rolls would be shipped from more isolated paper mills. If the finishing department is treated like a good customer, the same persistent effort would be directed towards delivering only saleable paper to the finishing department as is directed towards shipping rolls. Hence, the parent rolls would be wound tight and defective areas would be removed in the paper mill. This would save the wasted time on the cutters and trimmers necessary to sort out wrinkles and defects in the paper in the parent rolls. It would also have a good psychological effect on the paper machine crew who would realize that they will get no credit for production which is not up to standard. Hence, less defective paper would be produced and the paper machine operation would be benefited.

Defective Paper Can Defeat Automation

The most involved problem facing the design engineer today, who has the problem of designing an improved finishing department, is the necessity for providing for sorting, rectification and broke handling. This problem discourages progress because in spite of the man-saving advantages of automation equipment, it "bogs" down when variable quantities of paper in process frequently have to be "culled" out of the production line and the balance of the line is idle until it is replaced. Hence, everything possible should be done to remove defective paper before it is delivered to the finishing department. This can be accomplished by an improvement in inspection equipment and we salute the paper mills who are developing electronic inspection equipment, using profile gauges, and hole detectors on the paper machines. However, it is also recommended that the acceptance of paper from the paper machine be the prerogative of the finishing department su-

perintendent. To accomplish this, it is necessary for the latter to have equal status with the paper machine superintendent.

"Companies which have granted the finishing superintendent equal status with the paper mill superintendent have made substantial reductions in finishing costs."

One Way to Reduce Defective Paper

To say that one way to reduce defective paper is for the finishing department to refuse to accept it and to make it stick sounds as though the finishing department superintendent, who has been directed by the mill manager to salvage too much of the production made by the paper machines. This is not true, but we have seen the results of high paper machine production without regard to minimum quality requirements which created chaos on the rotary cutters.

At least one cutter was occupied 24 hours per day salvaging paper limited to two rolls on the backstand. Also, the trimmer and packing lines were "down" three or four times per shift, waiting for decisions on defective paper found during the unloading of the skid loads. Incentive wage payment plans were almost impossible to administer satisfactorily, net saleable paper packed was less than normal and broke handling equipment and broke storage facilities were overloaded.

"The most involved problem facing the designer of finishing equipment is the need of excessive provision for sorting, rectification and broke handling."

When the change in organization (separation of finishing from papermaking supervision) had been assimilated, the finishing department made the rejection of soft rolls, corrugated rolls, etc., stick and charged back against the paper machine operation, all cutting costs for defective rolls found at the cutters. This produced the desired result. At first, there was some slow down of the paper machines, but finally the quantity of saleable paper produced was considerably increased.

Reduction of Defective Paper

There is also a desirable chain reaction which results from the rejection of unsaleable paper at the paper machine. This stems from the fact that quantities of paper finished match the individual order quantities. This simplifies the problem of packing supply quantities which are surplus when heavy culling occurs during the finishing operations and are short when large overruns occur due to better quality. We will clarify this. Frequently, the scheduling department orders 30 per cent more paper to be made for an order, than is required, just to be certain that an important order is completely filled without back order. If, contrary to previous experience, the new order is not culled heavily in the finishing department, there is a large overrun for which there are insufficient skids or cartons provided. The chain reaction extends to the customer too. He has in the past been asked to accept both shortages and overruns. When he does not accept short shipment, a short run has to be re-scheduled on the paper machine with consequent loss of efficiency and increase in broke loss. When he does not accept an overrun, the excess paper must either be stored until the next order is received and occupy valuable floor space, be sold as a job lot or returned to the beaters.

Improvements Due to Supervisor's Status

Probably the tag "Orphan or Stepchild of the Industry" has been applied to the finishing department because of the lack of attention to development of efficient equipment or even the replacement of outmoded equipment. This, of course, is because of the low status of the man in charge of the finishing department. The industry fails to recognize him; his name rarely or never appears in "Lockwoods Directory", his problems until recently have not been aired at PIMA or TAPPI meetings and now only rarely. Possibly this is due to the fact that he is one of the busiest men at the mill. His problems may not be large but he has a large number of them. In fact, he is so engrossed with all his problems, that it may be partly his own fault that he has not exchanged ideas with his counterpart in other mills and taken an active interest in national and local organizations to study improvement of methods.

FDS Can Do More Than You Think

The finishing superintendent particularly in a fine paper mill contributes a great deal more when he can participate in policy discussions dealing with employee relations, capital allocations and sales plans. He is responsible for the greatest single group of employees in the mill. The ratio being five to one compared to the papermaking operations. This department contains the greatest number of individual operations. The ratio here being as high as ten to one in the paper mill proper. The number of crews and the number of jobs are in a like proportion. The finishing department has the last contact with the product before it arrives at the customer and supplies the outward appearance of good quality that is essential. The customer service demanded today is largely dependent upon the warehouse function and shipping speed and accuracy.

FDS Qualifications Very Important

Before we finish this discussion of the need for a higher status for finishing superintendents, we must make it clear that all finishing superintendents do not qualify. In other words, it is not only possible to improve the operation of the finishing department by raising the status of its superintendent, it is also necessary to improve the qualifications of the superintendent. However, we are convinced that the latter will be implemented, first by the good management normally found in fine paper companies. Towards this end, some companies are engaging individuals with industrial engineering training or inclination who can be trained later in supervision of operating departments to fill the job of finishing superintendent.

Editors Note—The author of this series, who for personal reasons wishes to remain anonymous, suggests we might point out that he is not and never has been a finishing superintendent.

MAINTENANCE SERIES
NUMBER 17

Getting The Best Performance From Your V-Belt Drives

Observing the following suggestions for selection, installation, maintenance, and storage can save you money: you'll have less downtime, your drives will last longer, your production schedules will be aided.

Alfred E. Poehlmann,
Executive Engineer,
The Gates Rubber Co.,
Denver, Colo.

Multiple V-belt drives are widely accepted as the most trouble-free method of mechanical power transmission. The belts . . .

. . . handle large fluctuations in load
. . . are more resilient than chains or gears
. . . require less tension than flat belts
. . . operate at lower bearing loads
. . . are just as efficient on short center distances as on long ones
. . . need less maintenance, and
. . . save a lot of wear and tear on machinery.

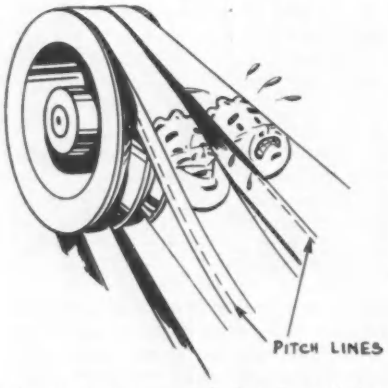


Figure 1: In unmatched sets of belts, pitch lines are likely to differ.

Yet, all these benefits are easily lost if the selection and maintenance of V-belts follows a haphazard procedure.

Matched Sets Vital

First, be sure to use matched sets from only one manufacturer. If different makes of belts are used. it is very likely their pitch lines (See Figure 1) will be different. Such mismatched belts tend to travel at different speeds and work against other belts in the drive. Too, tensile members in different manufactuer's belts are not made of the same material. So growth characteristics may eventually cause the belts to stretch unevenly, resulting in a set of mismatched belts.

How do you make sure you have a matched set? Next to the label on every V-belt is a matching number, such as the "No. 50" illustrated in Figure 2. This number is stamped on the belt at the factory. When selecting V-belts with outside circumferences of less than 100 inches, always select belts with the same matching number. For longer belts you can use a spread of an additional consecutive matching number for each additional 100 inches of belt length.

Naturally, you don't try to make a set from old and new belts. New belts are probably shorter. They ride higher in the grooves and carry more than their share of the load. However, you may save old belts until you can make a complete set that can be adjusted to operate at approximately the same pitch line and tension.

Proper Installation

Probably the most important element of any V-belt drive is installation. A properly installed drive is easy to keep in top running condition. By observing the following pro-

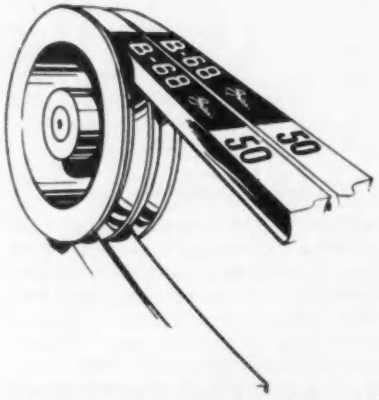
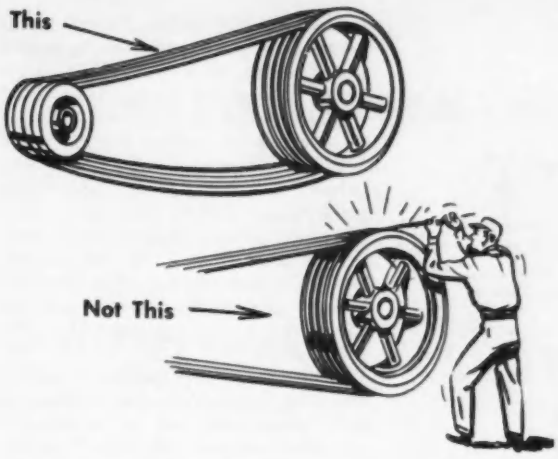


Figure 2: Comparing belt numbers will assure matched sets.



◄ **Figure 3: Prying the belt over the sheave without slacking-off the drive may break the belt's tension cords.**

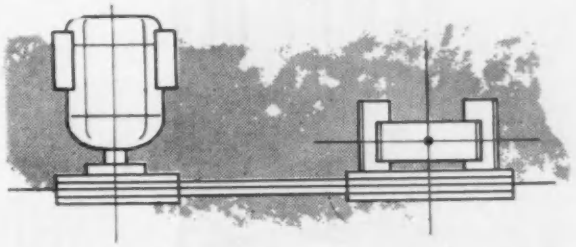


Figure 4: Placing the drives shafts parallel to each other prevents uneven tensions in the belt, which are damaging to the belt.

cedures you can be assured a trouble-free drive:

1. Clean oil and grease from sheave grooves. A clean surface gives the belts a chance to secure the greatest wedging effect.

Remove nicks and burrs from grooves. This prevents belt damage and premature failure.

Replace sheaves with badly worn grooves. Excessive groove wear causes V-belts to ride lower and bottom on the shoulders worn in the grooves. This cuts down gripping power. It may even cause slipping and shorten belt life.

Replace damaged bushings or bent shafts. These may cause a sheave to wobble or run eccentric, which in turn, causes the belts to whip and weaken tensile members, shortening belt life.

2. Slack off the drive and apply the belts without prying extreme force. (See Figure 3) Forcing the belt over the edge of the sheave may break its tensile cords and destroy the usefulness of the belt. Also, a weakened belt is more likely to turn over in a groove.

3. Place the shafts exactly parallel as shown in Figure 4. When the shafts are not parallel, V-belts are under uneven tension from one side of the drive to the other.

Align the sheaves so that belts enter and leave the grooves in a straight line, and without rubbing against the edges of the grooves. (See Figure 5) Belts last longer when these alignments are made.

4. Sufficient provisions should be made for installation and take-up. (See Figure 6) This is necessary to take care of stretch and wear, to get maximum life from V-belts. The recommended adjustment for this take-up is 3 per cent of belt length.

5. With the belts in place and sheaves properly aligned, adjust the take-up until the belts are fairly snug in the grooves. Then tighten down the motor and start it to see if the belts have the necessary "bow" on the slack side.

If the belts screech when starting up or on overload, the tension is not sufficient. The drive should be tightened even more.

After a few hours under load, check the belts again and readjust tension till there is again just a slight "bow" on the slack side.

Regular Inspection

Like all machinery, V-belt drives give the best service when they are properly installed and regularly in-

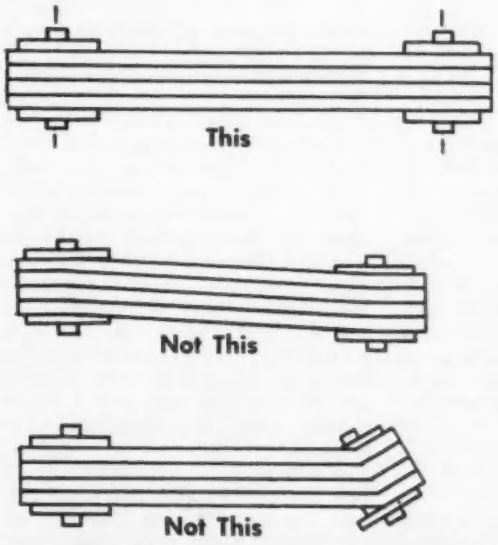


Figure 5: Belts last longer when the sheaves are aligned with each other.

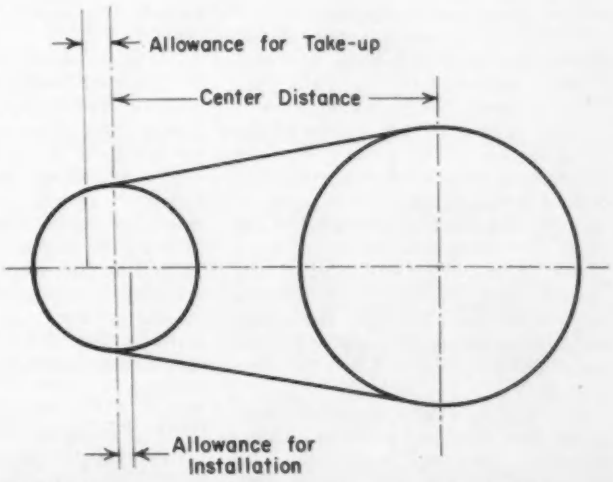


Figure 6: Recommended allowance for take-up is 3 per cent of the belt's length.

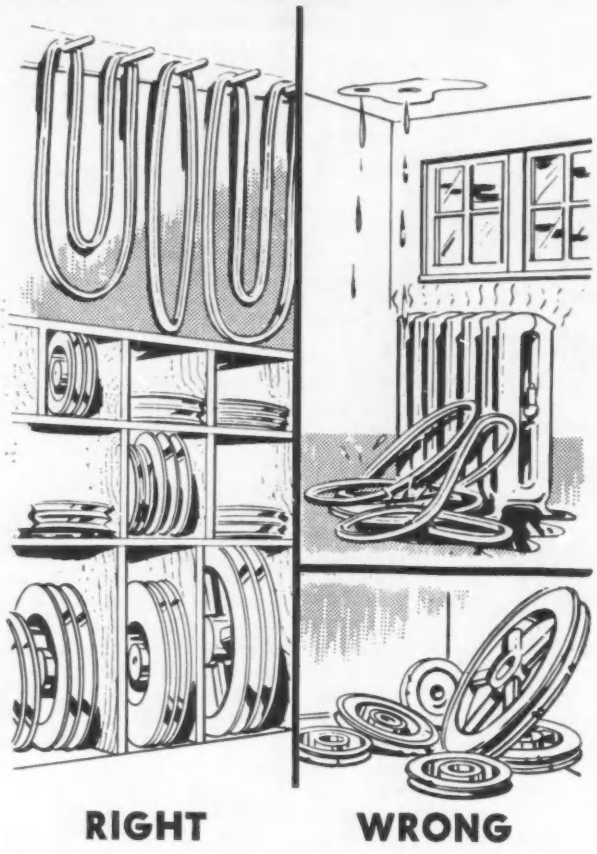


Figure 7: Belts are stored in a cool, dry, and darkened area; sheaves are never rolled along floors.

spected and maintained. With an organized, regular inspection you detect items needing attention long before a belt fails. Moreover, you avoid failure of more than one belt on a drive at one time. Maintenance may be handled during regular downtime rather than as an emergency.

When you visually inspect a V-belt drive, see that the belts are uniformly tensioned on the tight side. There should be no sagging belts and all belts should be riding at the same depth in the groove. Periodic adjustment of the take-up maintains proper tension and takes care of stretch and wear. Check also to see that the belts are not striking a guard or any other obstruction. The sheaves may not have been replaced in their original position. The guard may be deformed. Or, a drive adjustment may be allowing a belt to strike a guard.

On some occasions inspection may show you that a problem exists. Sheave grooves may be all right. The drive may be properly aligned. But still there is a complaint that the belts have a short service life. In this case, check your stock records. Find out how often the belts were replaced on the machine and on similar drives. A look at the records may give other clues. For example, you may discover that the load has been increased since the drive was designed, but nobody has redesigned the drive.

On other occasions, there may be a complaint that the belts stretch beyond their take-up allowance. Again, check your stock records. Look for a clue to a change in load, perhaps even an under-designed drive. The drive should also be checked for excessive tension. This causes V-belts to grow or stretch abnormally. The belts may also be the wrong sizes and may not fit the sheaves properly. Or, the belts may be too long for the drive. In this case, install a matched set of the correct size.

Never Apply Dressing

During an inspection you may find a drive squealing because the belts are slipping. The slippage may be due to insufficient tension or too heavy a load on the drive. **Never try to correct a slippage problem by applying dressing to V-belts.** Belt dressings are intended for flat belts. Most dressings contain chemicals that act as a solvent and soften the rubber in V-belts. When this happens, V-belts become tacky and often stick in the grooves and literally tear off the hide. This tacky situation also causes belts to pick up dirt and sand which promotes abrasive wear on both belts and grooves. Net result is shorter service life, perhaps even replacement of the entire drive.

In addition, this build-up of dirt and grit in the grooves reaches a point where the belts ride on dirt and cease to grip the sheave walls. The advantage of V-belts in sheave grooves is then lost. The V-belt drive becomes no better than a flat belt drive.

You can solve the problem of belt slippage by cleaning the drive and applying the proper tension. If this doesn't help, the drive is probably overloaded and needs to be redesigned.

Cool, Dry Storage

V-belts should be stored in a cool, dark place away from radiators and out of the direct sunlight. During storage, heat dries the oil out of V-belts and causes them to become hard and brittle.

If space permits, the belts should be uncoiled and hung over pegs in a rack or on a wall. (See Figure 7) Stored in this way, V-belts keep for years.

Sheaves are usually made of cast iron or steel and covered with a protective coat of paint. Nevertheless, sheaves should be stored indoors to prevent rust.

Sheave grooves are of considerable importance in the life of a V-belt drive. Mishandling and improper storage of sheaves is many times the cause of premature wear on V-belts. Sheaves should be protected at all times to prevent contact with other sheaves or hard surfaces. Never roll a sheave along hard floors. This can result in burrs on top of the grooves. Sharp edges of the burrs abrade the belt and seriously shorten its life.

Observing these suggestions for selection, installation, maintenance and storage can save you a lot of money. You'll spend less total time maintaining your V-belt drives. You'll have less downtime, which will help you meet production schedules. And, since the drives will last longer, you'll have lower annual replacement costs. All in all, you'll get the best performance from your V-belt drives.

PJT ASSOCIATION NEWS

U. S. Paper Exporters Council Elects Officers

Robert M. Robert, president of Aquatex Paper Corp. and of Robert Paper Co., Inc., was elected president of the United States Paper Exporters Council, Inc., at its Eighteenth Annual Meeting held May 19 at the Canadian Club, Waldorf-Astoria Hotel, New York City. Mr. Robert is also the president of the Paper Club of New York and chairman of the Associate Members of the Greeting Card Ass'n.

The council also elected as its vice president Albert Andrews, vice president of Bulkley, Dunton, S. A., and as its treasurer L. H. Andre, vice president of Van Reekum Paper, Inc.

In addition to the officers, the board of directors includes the retiring president, Charles N. Auer, sales promotion manager of Champion Paper Corp., S. A., and William Freund, secretary of Paper Corp. of United States.

Executive secretary and counsel is Harold Held, Esq., of Javits & Javits of New York City.

TAPPI Forest Biology Conf. To Be in Seattle

The Forest Biology Conference, sponsored by the Technical Ass'n. of the Pulp and Paper Industry (TAPPI), will be held Aug. 24-27 at the New Washington Hotel in Seattle, Wash. These dates were selected since the World Forestry Conference will convene the week thereafter at the University of Washington in Seattle.

R. J. Seidl, Simpson Timber Co., Seattle, Wash., general conference chairman, has announced the Conference theme: "Better Fibers from Better Trees Through Forest Biology," and has released a tentative program, which is outlined below.

J. W. Duffield , W. B. Greely Forest Nursery, Nisqually, Wash., is chairman of the technical program committee. He is being assisted by B. J. Zobel, School of Forestry, North Carolina State College, Raleigh, N. C.; B. A. Jayne, Washington State Institute of Technology, Washington State University, Pullman, Wash.; and V. P. van Buijtenen, The Institute of Paper Chemistry, Appleton, Wis.

R. Z. Callaham, Forest Service, U. S. Dept. of Agriculture, Spokane, Wash., is in charge of local arrangements and field trips. He is being assisted by R. F. Sultze, Simpson Timber Co., Seattle, Wash.

TAPPI Testing Conference Details Announced

The 11th Annual Testing Conference sponsored by TAPPI will be held September 27 through 29, 1960, at the Pantlind Hotel, Grand Rapids, Mich.

W. R. Willets, Titanium Pigments Corp., New York, N. Y., program chairman, has announced a symposium on the testing of "Water—the Most Important Non-Fibrous Raw Material." E. W. Petrich, Howard Paper Mills, Inc., Urbana, Ohio, will be the moderator.

Alkaline Pulping Conf. Tentative Program

The 14th Alkaline Pulping Conference sponsored by TAPPI will be held August 22 through 24 at the Multnomah Hotel, Portland, Ore.

TENTATIVE TECHNICAL PROGRAM

Monday, August 22—Morning Session.

"An Evaluation of Certain Laboratory Pulping Methods"—Edward F. Thode, John R. Peckham and Edward J. Daleski, The Institute of Paper Chemistry.

"The Effects of Outside Storage on Slash Pine Chips in the South"—C. W. Rothrock, St. Regis Paper Co., W. R. Smith, Southeastern Forest Experiment Station, and R. M. Lindgren, U. S. Forest Products Laboratory.

A paper on the Impco Continuous Digester at Hammermill will probably be co-authored by supplier and mill.

"Diagnosis of Deposits of Pulp Mill Origin"—R. T. Mashburn, P. D. Applegate, and H. R. Miller, Hercules Powder Co.

"Abatement of Air and Water Pollution"—Vinton W. Bacon, Northwest Pulp & Paper Ass'n.

Afternoon Session.

"A Modern Design for Kraft Recovery Dissolving Tanks"—C. R. P. Cash.

"Interaction of Smelt and Water"—H. P. Markant, C. E. Rogers, and H. Dluehosh, Babcock & Wilcox Co.

"Experience with the Production of Chlorine Dioxide"—Thomas C. Payne and Billy Wade Smith, International Paper Co.

"Operational Experiences with Continuous Calcium Hypochlorite Systems"—John W. Klein, Longview Fibre Co., and Harry S. Fisher, Pennsalt Chemicals Corp.

Tuesday, August 23—Morning Session.

"Panel Discussion on High Yield Kraft Pulping." Panel to be composed of mill men representing mills in the South, Southeast, West Coast and Canada.

Afternoon Session.

Semichemical Pulping Program. Four papers to be presented.

Mill Visits

Mill visits are being planned with trips to Crown-Zellerbach Corp., Camas, Wash.; Longview Fibre Co., Longview, Wash.; Weyerhaeuser Timber Co., Longview, Wash.; the Electric Steel Foundry, Portland, Ore.; and Pennsalt Chemical Co., Portland, Ore.

A woods trip is also being arranged with details to be announced later.

CHAS. T. MAIN, INC.

ENGINEERS

PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

BOSTON, MASSACHUSETTS

CHARLOTTE, NORTH CAROLINA

NEW EQUIPMENT & SUPPLIES

Reciprocating Shower Has Built-In Cleanout

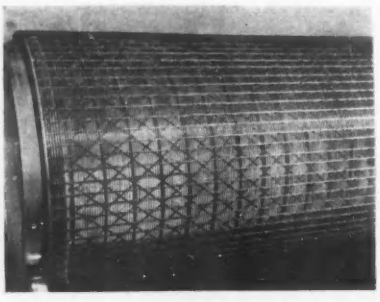
The Emerson Manufacturing Co., division of John W. Bolton & Sons, Inc., Lawrence, Mass., has introduced a reciprocating shower pipe for use in either fresh or white water systems. Available in diameters ranging from 1½ to 6 inches, and in lengths up to 375 inches, Emerson's reciprocating shower comes as a complete unit. Included are the actuating mechanism, flexible rubber air inlet hose for connection to the mill supply line, and supports.

The reciprocating movement is actuated by an automatic, reversing pneumatic cylinder which is adjustable to the desired length of stroke and speed. The pipe is supported by rubber rollers which are mounted on sealed bearings.

Equipped with anti-corrosive nozzles in any orifice required, the reciprocating shower has the standard features of fan spray and built-in cleanout mechanism. Stainless steel brushes are internally positioned in line with the nozzles. By turning a handle at the front side of the machine, brushes clean the nozzle openings, while simultaneously a flush valve opens at the back side of the machine and flushes the entire pipe.

Dandy Roll Wire Reduces Water Throw, Streaking

A winding wire that increases dandy roll efficiency and paper quality, has recently been developed by the Sinclair Co. of Holyoke, Mass.



The Zigzag (patent applied for) wire, trade named because of its shape, increases draining through wire cloth cover of roll and reduces water throw. An outstanding feature of the Zigzag wire is that it eliminates a double cover and spiral or diagonal seam on the dandy roll thus permitting a tighter fitting straight seam cover. Also, this winding wire is said to decrease filling and sheet streaking during high speed operation.

Further information may be obtained by writing: The Sinclair Co., 60 Appleton St., Holyoke, Mass.

Several Advantages Seen In Rayon Cord Strapping

Avistrap rayon cord strapping, which has patents pending, offers shippers entirely new advantages in packaging, says American Viscose Corp., 1617 Penn. Blvd., Philadelphia 3, Pa. Because of its light weight, a 1000-yd. spool of ⅝ inch wide strapping weights 21 lbs., shipping costs are reduced. In addition, the product is said to cost less than competitive materials. Also investment per package are lower.

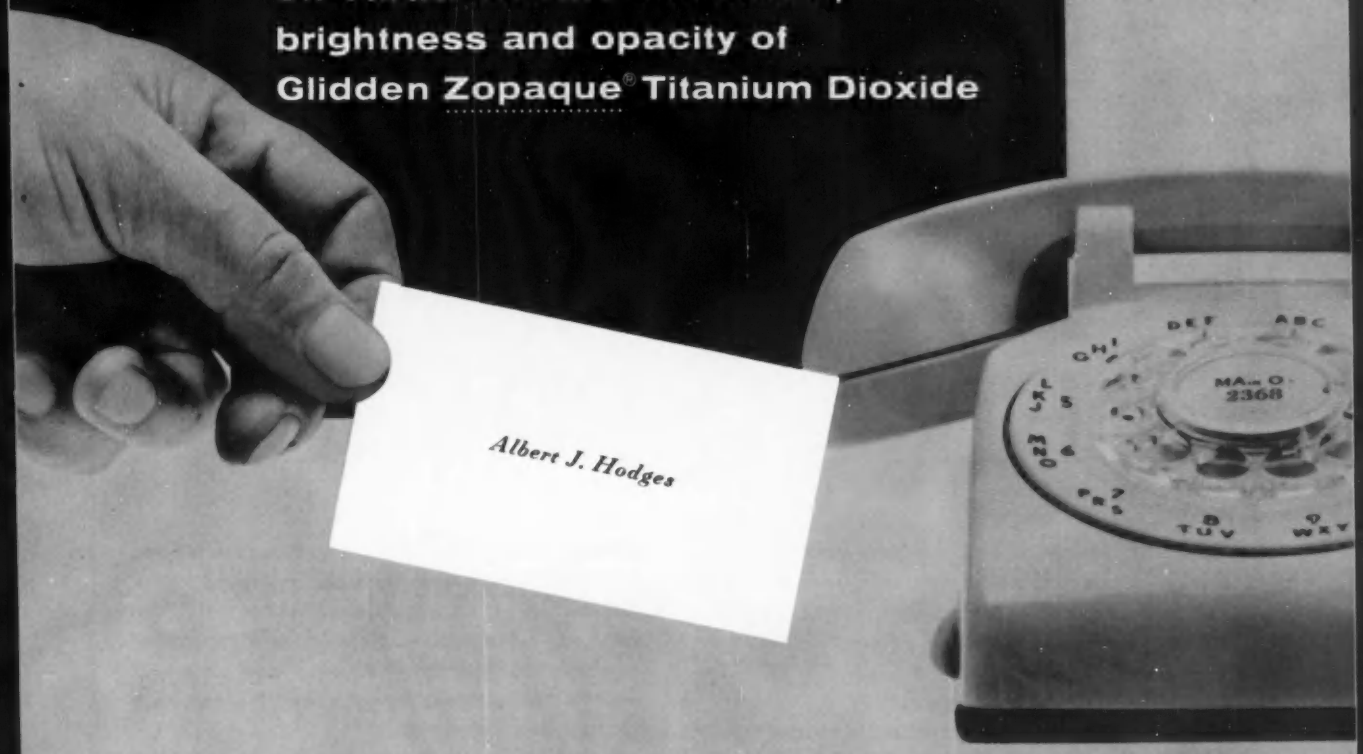
Injuries to personnel handling Avistrap are virtually eliminated, since there are no sharp edges. If over-tensioned, Avistrap does not lash out with jagged ends. Another feature is that Avistrap avoids any disposal hazard or expensive disposal procedure. The new strapping may readily be burned. Spools are also disposable.

Damage is sharply reduced, especially with regard to shipping cartons. The flexible cord strapping tightens around corners without cutting cartons; when properly tensioned, it cannot harm merchandise, and it will not rust. Still another advantage of Avistrap Cord Strapping is that it may be imprinted with company or product name. Such imprinting has not only promotional value, but offers quick identification and helps to reduce pilferage by full and clear designation of ownership.

Avistrap is shipped on pallets made up of packages in single-coil or four-coil cartons. The product needs little storage space; a 1,000-yd. spool of Avistrap measures just 13½ in. in diameter and is only 6 in. wide. It is available in 5 widths from ¼ to ¾ inches. Tensioners and sealers are also available from Avistrap distributors.

Card Sense

Discerning business people insist on cards with the whiteness, brightness and opacity of Glidden Zopaque® Titanium Dioxide



Fine papers of all types benefit from Glidden Zopaque, the whitest white pigment available.

The outstanding dispersion characteristics of Zopaque assure smoother paper surfaces. Its superior optical qualities provide minimum show-through. Zopaque is available in various grades specially developed for coatings and beater addition.

Write for full facts on the many advantages of using Glidden Zopaque Titanium Dioxide in the manufacture of paper products.

QUALITY Glidden PRODUCTS

FINEST PIGMENTS FOR INDUSTRY

The Glidden Company
Chemicals—Pigments—Metals Division
Baltimore 26, Maryland

(This advertisement is printed on paper stock containing Glidden ZOPAQUE Titanium Dioxide.)

YOUR NEW PULP/PAPER MILL AT A PREDETERMINED FIXED PRICE

A unique and economic approach to capital investments in new mills has been introduced to the industry by Kellogg through its over-all engineering-procurement-construction responsibility for Tennessee River Pulp & Paper Co's. new 500 T/D kraft pulp and liner board mill.

This method of minimizing and accurately predetermining plant costs was perfected by Kellogg through long experience in designing and building multi-million dollar projects for the oil refining and petrochemical industries—two of the world's most consistent and experienced capital investors.

Kellogg's approach, basically, is a matter of working closely with the client to integrate process and plant design, materials and equipment procurement, and all construction steps into one operation. Whether Kellogg is the sole contractor or is working with many sub-contractors, the end result is the same—a highly efficient plant at a predetermined fixed price.

Executives interested in learning more about this economic and proved approach to new production facilities are invited to write for Kellogg's brochure—"Planning the New Plant for Profits." Your copy can be obtained promptly by returning the coupon.

KELLOGG

THE M. W. KELLOGG COMPANY
(A subsidiary of Pullman Incorporated)
711 Third Avenue, New York 17, N. Y.

Please send copy of brochure—"Planning the New Plant for Profits."

Name_____

Title_____

Company_____

Address_____

NEW OUTLETS FOR YOU...
THE COMMON EUROPEAN MARKET
GROUPING 165,000,000 CONSUMERS

Suppliers to the paper industries, advertise your products to the paper manufacturers of the Common Market by using the advertising pages of "LA PAPETERIE" the most important and the oldest French Language Technical Magazine (82nd year), widely read throughout Europe.

(Price per page: From $80 to $68, based on quantity)

Ask for a specimen copy and the rates— or instruct your advertising agent to obtain them from:

"LA PAPETERIE"
9 Rue Lagrange
Paris
5e
France

Vertical Centrifugal Pumps Added to Line

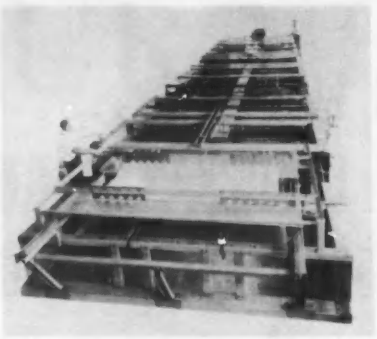
The addition of two sizes to the line of Goulds heavy duty vertical centrifugal sump and process pumps increases the capacity range from approximately 1000 g.p.m. to over 3000 g.p.m. The sizes—6-inch and 8-inch discharge units—are available for pit depths of from 3 to 20 ft. for either dry pit or wet pit service, and can be furnished in all iron, bronze fitted or stainless steel construction.

The open impeller used on all units has ejecter vanes on the back side which prevent entrance and jamming of solid materials between the back of the impeller and the stationary side plate. Six-inch pumps will handle solids up to 1-11/32 inch in diameter; 8-inch pumps up to 2-27/32 inches.

For vapor proof handling of toxic or hazardous liquids, possible points of leakage of vapor or fumes are sealed and an upper stuffing box is supplied which also has a water jacket for cooling. Maximum temperature of liquids handled in standard construction is 200°F. With stuffing box and quench gland cooling, liquids with temperatures up to 350°F. can be handled. Complete information contained in Bulletin 726.2 available from Goulds Pumps, Inc., 205 Black Brook Rd., Seneca Falls, N. Y.

Liquid Meter For Small Flows

A chemical liquid meter, the BNV model, especially designed for small flows has been added to its line of Niagara Liquid Meters by the Buffalo Meter Co., Inc., Buffalo, N. Y.

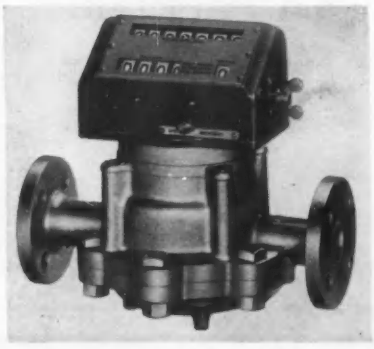


HORIZONTAL DOUBLE SOS BAG BOTTOMER (patent applied for) forms S.O.S. bottoms at each end of the tube simultaneously, one open end with self sealing adhesive and one closed end. The photo shows the Bottomer built for mattress size tubes. The machine receives the tube from the Tuber and feeds it thru creasing, gusset opening, bottom forming, pasting, bottom closing one end and final delivery to the conveyor at the rate of 900 bags per hour. For further information write to The Smith & Winchester Mfg. Co. of South Windham, Conn.

The BNV meter is ¾-inch size and supplements the 1-inch and 2-inch sizes previously manufactured.

Internal works of the new chemical meter will be constructed of type 316 stainless steel. The measuring piston, however, can be of any of a variety of materials as required. Outer casing will be constructed of stainless steel, carbon steel, or cast iron.

Available with either threaded or flanged connections, and with a full range of register types, this meter will measure a wide variety of chemical liquids including most acids, alkaline solutions, and deionized water.



Turbine Bowl Pump For Deep Wells

For installations requiring a large volume of water from 6-inch or larger deep wells, the Series UF Turbine Bowl Submersible pump by Goulds Pumps, Inc., is now available. Built in 16 sizes from 5 h.p. to 40 h.p. units, it will provide capacities up to 180 g.p.m. from well depths to 1450 feet.

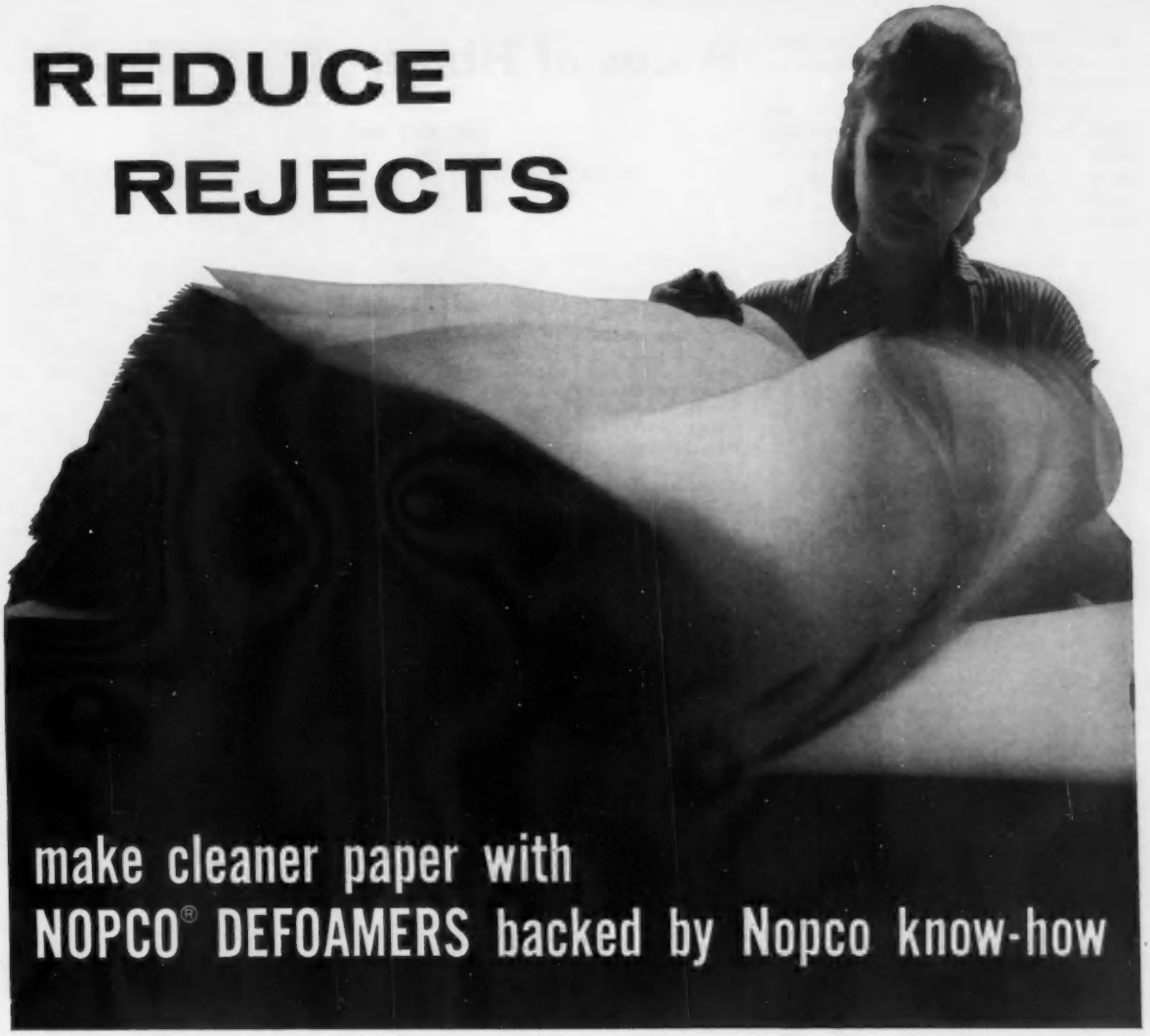
Bowl assemblies, varying in number from 2 to 23 depending on well depth, feature cast iron bowls with corrosion resistant baked-on alkyd melamine finish, bronze impellers and stainless steel fastenings. Heavy stainless steel shaft, coupling and non-corrosive intake screen minimize rust and corrosion. Tandem bearings located in each stage are leaded bronze and Goodrich cut-less rubber. Motors are water lubricated, prefilled, requiring no external lubrication and motor leads are protected by a stainless steel guard. "O"-ring gaskets between stages are blow-out proof. All units can be readily dismantled in the field for inspection or repair.

Installations formerly requiring deep well turbine type pumps can now be handled with these submersible pumps it is said. For further information ask for Bulletin 650A1 from Goulds Pumps, Inc., 208 Black Brook Road, Seneca Falls, N. Y.

Blowers Use Special Shaft Design

One-piece shafts slip-fitted through impellers and bolted to them at the gear end are featured on the "Series

REDUCE REJECTS



make cleaner paper with NOPCO® DEFOAMERS backed by Nopco know-how

One of the causes of a bad run of paper can be foam. Bubbles that carry fiber, size or color on their surface burst and leave light spots. Those that carry filler or dye leave dark spots. Either way, the sheet won't pass inspection.

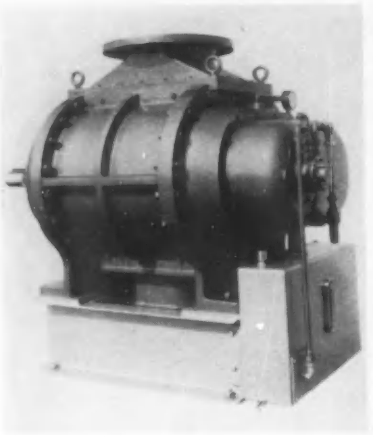
Many variables contribute to foam formation. Since each mill has its own distinct foaming problems—because of differences in equipment, type of water, chemicals used and running speeds—it takes a wide range of defoamers to meet them all. Let your Nopco specialist work with you to develop the best system for your conditions. Write for specific information and for literature.

NOPCO CHEMICAL COMPANY
60 Park Place, Newark, N.J.

Plants: Harrison N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada • Mexico • France
Manufacturing Licensees Throughout the World

3200" lobe-type rotary positive blowers and gas pumps introduced by Sutorbilt Corp., Compton, Cal.

This design allows increase in the diameter of the shaft in the critical area between impeller and gears without the loss of impeller strength caused by an enlarged bore. Also avoided is the use of the drive im-



peller to transmit power, which tends to deflect the impeller. A further advantage of a shaft larger at the gear end is the reduction of torsional deflection of shaft between timing gears and impellers, said to increase pressure and horsepower ratings. These units are designed to handle from 800 to 20,000 c.f.m. at pressures from 2 to 10 p.s.i. continuous (12 p.s.i. intermittent).

Machined sub-bases are standard. All base extensions for direct connection are stress-relieved prior to machining. These extensions are available for driver mounting. Jack screws are provided for leveling.

Need for oil cooler at ambient temperatures up to 125° F. is eliminated. Oil pump is reversible, and oil dams provide emergency lubrication for gears and bearings if force feed system should become inoperative.

Four anti-friction roller bearings are installed in bearing cartridges. Gear-end bearings are locked to maintain the axial position of the impellers between headplates and to permit drivers to be directly connected without adding thrust bearings.

Special helical timing gears, are piloted to the shafts to insure concentricity, and bolted to the timing hub.

Gas and vacuum pumps are identical to the Series 3200 blowers, with the exception of the seals. Mechanical seals replace lip-type oil seals, to prevent leakage or gas contamination.

Prices of Fibers

MARKET WOOD PULP

SECOND QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡152.00/160.00				§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		140.00/ —		
Kraft, Semi-bleached.	140.00/145.00				
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	•155.00/ —	•155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	•135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. • Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED MAY 17

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	n.a.
3	$7.50/7.00	$8.50/7.75	$7.50/7.00	n.a.
4	7.00/6.25	7.25/6.25	6.50/6.25	8.50/ —
5	6.25/5.75	6.00/5.50	6.00/5.50	8.00/7.00
6	5.75/4.75	5.25/5.00	5.25/5.00	6.50/4.50
7	4.75/4.25	4.50/4.00	4.75/4.00	4.25/4.00

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

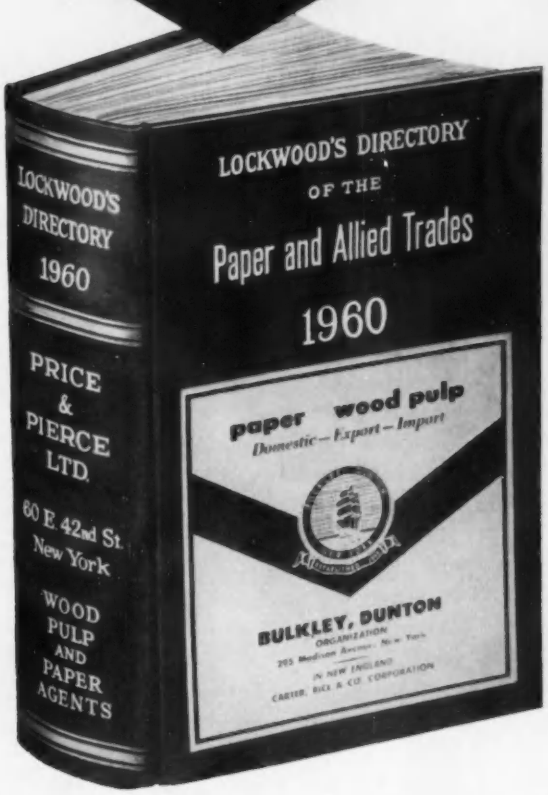
These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	May 23	May 23	May	May
No. 1 Mixed Paper	$ 7.00/ 9.00	9.00/ 11.00	6.00/ —	12.00/ 13.00
No. 1 News	12.00/ 13.00	12.00/ 13.00	13.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	11.00/ 13.00	18.00/ —	18.00/ 19.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	9.00/ —	12.00/ 14.00
Old Corrugated Containers	22.00/ 23.00	19.50/ 20.00	18.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	35.00/ —	35.00/ —
(Semi-chem. medium)	47.50/ —	47.50/ —	45.00/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	17.00/ —	32.50/ 35.00
White Newsblanks	47.50/ 52.50	47.50/ 52.50	35.00/ —	60.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	57.50/ 60.00	60.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White nv. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	42.50/ 45.00	42.50/ 45.00	45.00/ —	40.00/ 45.00
Manila Tab. Cards	62.50/ 65.00	62.50/ 65.00	65.00/ —	70.00/ 75.00
No. 1 Col. Ledger	35.00/ 40.00	35.00/ 40.00	40.00/ —	27.00/ 29.50
White Ledger	48.50/ 52.50	50.00/ 55.00	50.00/ —	52.50/ 55.00
Mixed Book & Mag.†	22.00/ 25.00	— / —	12.50/ —	— / —
No. 1 Books‡	16.50/ 19.00	14.50/ 16.50	27.50/ —	13.50/ 14.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

AUTHORITATIVE REFERENCE BOOK OF THE PAPER AND PULP INDUSTRY

85th Annual Issue



PAPER AND PULP MILLS
UNITED STATES AND CANADA 1520 Pages
Comprehensive reports including name of Company, Officers and Operating Executives.
Location of mills shown in geographic order.
Mills identified to show whether Paper—Ground Wood—Sulphite Pulp—Sulphate Pulp—Soda Pulp—Semi-Chemical Pulp, etc.
Products manufactured. Total production in pounds per twenty-four hours.
Types of mill equipment and kind of power used.
Shipping point, railroad siding, post office, nearest bank, money order and telegraph office. Bus lines. Airport. Telephone. Highways. U. S. and State route numbers. In Canada: Kings and Provincial route numbers.

State and Provincial Maps keyed to indicate number of Paper and Pulp Mills in each City or Town.

MILL OFFICIALS
An alphabetical list of the names of officers and operating executives of the mills including their connections.

LISTS OF NEW AND IDLE MILLS

CLASSIFIED SECTION
In this section are shown in alphabetical order the products made by all of the Paper and Pulp mills in the United States and Canada.

CITY ADDRESSES
In this section are shown the names and street addresses of Paper and Pulp Mills and Mill Agents maintaining offices in the principal cities of the United States and Canada.

Reports of the Paper and Pulp Mills in Latin America and Philippine Islands.

PAPER AND PULP MILLS AND CONVERTERS EQUIPMENT AND SUPPLIES
A classified section showing machinery, equipment and supplies purchased by the pulp and paper mills and the converters of paper products, with names and addresses of the manufacturers. An alphabetical list of Leading Trade Names with names of owners.

CONVERTERS
Manufacturers of products made from paper, paper board, moulded pulp, etc. This section is geographically arranged by States and reported as follows: Name of company. Location of plant. Name of officers and operating executives. Types of mill equipment. Kind of products made.

CONVERTERS' PRODUCTS
Alphabetically classified including the names and addresses of concerns manufacturing products made from paper, card board, moulded pulp, etc., such as bags, boxes, cups, envelopes, glazed and coated paper and board specialties, papeteries, prepared roofing, tablets, pads, tags, toilet paper, towels, vegetable parchment, wall paper, waxed paper, etc., etc.

GENERAL PAPER MERCHANTS
Geographically arranged by States. Keyed to show dealers who maintain stores. Dealers who sell from mill direct. Merchants who sell from storage or warehouses. Merchants in other lines who carry paper as a side line. Concerns that are branches of houses located elsewhere. Fine Paper. Coarse Paper. Broker.

PAPER EXPORTERS AND IMPORTERS
Geographically arranged by States.

RAGS AND PAPER STOCK DEALERS
A selected list of geographic order of dealers in Rags, Paper Stock, etc. Keyed to show stocks handled. Importers are indicated.

RAGS AND PAPER STOCK CONSUMED
Kind and grade of Rags and Paper Stock Consumed by the mills in the United States and Canada. List of Purchasing Agents.

PULP TESTERS
Approved by certified pulp tester's bureau.

STATISTICAL TABLE
Showing number of concerns owning mills, together with the number of Paper and Pulp Mills in the United States and Canada.

TRADE ASSOCIATIONS
In the paper and allied trades of the United States and Canada.

WATERMARKS AND BRANDS
Alphabetical list of watermarks and brands used in the American paper trade with names and addresses of owners.

WOOD PULP AGENTS
Importers and Exporters.

Lockwood's Directory 49 W. 45th St., N. Y. 36, N. Y.
Regular or Traveler's Edition $12.00 each.

☐ Regular Edition
Please send ☐ Traveler's Edition, Postage Paid.
☐ Bill Me ☐ Bill Company ☐ Check Enclosed

All New York City Orders Are Subject to 3% City Sales Tax

Name .....
Company .....
Address .....
City ..... Zone ... State .....

TRAVELER'S EDITION—375 pages contains ONLY the complete reports of the Paper and Pulp Mills as shown in the regular edition, the maps, the index to the mills and the alphabetical list of mill officials and executives.

U.S.I. SERVICES THE PAPER INDUSTRY WITH TECHNICAL LAB ASSISTANCE...

IN PACKAGING—From studies such as this test of heat seal strength, U.S.I.'s Polymer Service Laboratories develop recommended procedures for all aspects of polyethylene packaging.

IN PULPING—Tech Service Engineer at U.S.I.'s laboratory-scale pulp and paper "plant" determines brightness of a hand sheet he has made from customer's pulp, on Hunter Multipurpose Reflectometer. He will also test it for tensile and bursting strengths, folding resistance.

in pulping
in converting
in packaging

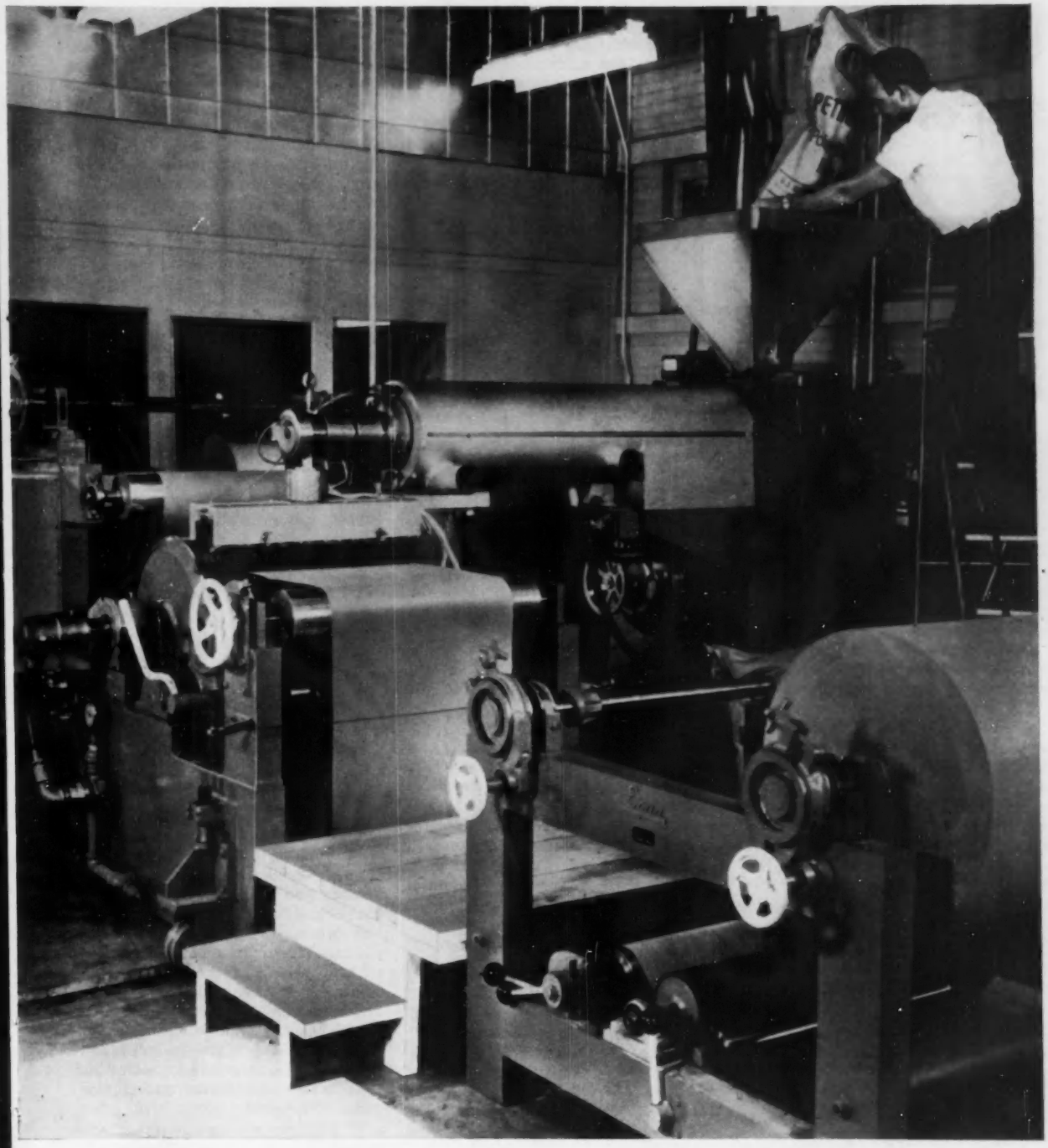
Whether you're pulping, converting or packaging paper products, U.S.I. has a laboratory and staff devoted to technical service in your field. Its job: to see that U.S.I. products for the paper industry give you the results you need in your operation.

U.S.I.'s pulp and paper laboratory—built eight years ago when U.S.I.'s Huntsville, Alabama, chlorine and caustic soda plant began operation—is a miniature paper plant, complete with auxiliary testing equipment. Here our engineers work on bleaching and assist with other applications of U.S.I.'s chlorine, caustic, ammonia, sodium peroxide . . . determine systems, techniques, types and concentrations of chemicals so that customers will know how to produce the brightest pulp with minimum fiber degradation.

Another lab at Tuscola, Illinois, is staffed with experts on polyethylene technology—including coating of paper and board, and packaging of paper products for the consumer market. They have equipment to duplicate commercial production and testing techniques . . . to tackle any problem involving an application for PETROTHENE® polyethylene resins.

A vital part of the Polymer Service Laboratories' work is development of new polyethylene paper coating and paper products packaging techniques along with design of necessary equipment.

Write or call for more information on how these services can work for you in improving your products . . . expanding your markets.



IN CONVERTING—Duplicating commercial equipment in everything but width, this coating machine at U.S.I.'s Polymer Service Laboratories is a key factor in developing new polyethylene resins for specific substrates. Latest products to come out of such work are three new PETROTHENE® resins designed for paper coating applications.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
Branches in principal cities

CHLORINE • CAUSTIC SODA • SODIUM PEROXIDE • AMMONIA • PETROTHENE® POLYETHYLENE

PJT NEWS OF SUPPLIERS

W. P. Simmons

R. A. Miles

L. G. Bragg

F. H. Singletary

William Powell Co., Cincinnati valve manufacturer, signalling a marketing expansion program, announces the appointment of two West Coast sales engineers.

They are: William P. Simmons, regional sales engineer, San Francisco; and Robert A. Miles, district sales representative, Los Angeles.

Both men bring to Powell more than 10 years of active valve experience in their territories.

Research-Cottrell (Canada), Ltd., announces appointment of L. Grant Bragg as manager of its Toronto office.

Mr. Bragg brings to his new post a broad background of industrial sales and operating experience. He was previously associated with Greey Mixing Equipment, Ltd., Dorr-Oliver-Long, Ltd., and Hudson Bay Mining and Smelting Co., Ltd. Mr. Bragg is a graduate in chemistry of the University of Manitoba.

Research-Cottrell (Canada), Ltd., 33 Bloor Street East, Toronto, Ontario, manufactures and sells industrial gas cleaning equipment, notably Cottrell electrical precipitators, Cyclo-trell mechanical dust collectors, and the Fooded Disc Scrubber. The company is a wholly owned subsidiary of Research-Cottrell, Inc., of Bound Brook, N. J.

Appleton Woolen Mills has appointed F. H. Singletary Southern sales representative. His territory covers six states, including Mississippi, Arkansas, Texas, Louisiana and parts of Alabama and Tennessee.

Mr. Singletary, a veteran of more than 30 years in the paper industry, was on the sales staff of Appleton Woolen Mills from 1954 to 1957, representing the Appleton, Wis., manufacturer of papermakers' felts in the South.

Before rejoining the firm, he had been employed by Eastwood-Nealley Corp., Belleville, N. J., in charge of Southern sales. In addition to his felt and wire sales experience, Mr. Singletary has had many years of paper mill supervisory experience.

Chas. T. Main, Inc., engineers, announces that James M. Forrester has recently joined its Pulp and Paper Group. Prior to becoming associated with Chas. T. Main in April 1960, Mr. Forrester was a project engineer at Rust Engineering in Pittsburgh, and before that was associated with H. K. Ferguson. Prior to that he was with Proctor & Redfern, and in the control engineering group of The Ontario Paper Co. A native of St. Catharines, Mr. Forrester studied chemical engineering at the University of Toronto.

J. H. Burges

H. L. Crosby

Mead Pulp Sales, Inc., Dayton, Ohio has appointed Joseph H. Burges consultant to the Industrial Division. He will be concerned primarily with heating and ventilating on paper machines and with the promotion of the new Mead Fiberglass Exhaust Hood.

Mr. Burges has been associated with all phases of the industrial use of air for drying, conveying, air conditioning, environmental equipment for 25 years.

His activities have included contracting manufacturing, sales and trouble shooting, design and application engineering.

Mr. Burges will be associated with George H. Cash, with offices at 230 Park Avenue, New York 17, N. Y.

M. W. Kellogg Co., New York engineering and construction firm, has named H. Lance Crosby's contract sales representative in its Pulp and Paper Division.

Mr. Crosby holds a master's degree in chemical engineering from Washington State University. He is a member of the Pulp Purification Committee of TAPPI, and acts as liaison with the TAPPI Corrosion

"We're doubling our groundwood pulp capacity."

Committee. His previous associations include many years with Rayonier, Inc., in research, development, and engineering. He comes to M. W. Kellogg from Dorr-Oliver, Inc., where he was assistant director of the Pulp and Paper Technical Division, and manager of process and equipment development.

K. E. Youngchild

J. R. Kemmerley

American Cyanamid Co.'s Industrial Chemicals Division has appointed K. E. Youngchild general manager and J. R. Kemmerley sales manager for paper chemicals.

Former sales manager of the company's paper chemicals department, Mr. Youngchild has been with Cyanamid since 1937 and has served in a variety of technical service and sales posts in the field as well as at company headquarters. Mr. Youngchild will make his headquarters in New York. He is a graduate of the University of Wisconsin.

Mr. Kemmerley joined Cyanamid in 1956 as assistant to the manager of manufacturing of the Industrial Chemicals Division and has since held various sales and technical service posts in the division's process and paper chemicals departments. He is a graduate of Pennsylvania State University and Harvard Business School, where he received his masters degree.

H. G. Weber & Co., Inc., Kiel, Wis., announces that plans, recently completed by Satre & Senescall, architects, on building additions and changes to the local plant facilities, have been approved for immediate construction.

The plans include an enlargement of the Assembly department, a new shipping dock, additional receiving department facilities, and a new grinding room and storage room for inflammable materials. The improved facilities will provide more expeditious handling of incoming materials and shipment of completed machines.

The Weber company, with the additions planned, will have approximately 35,000 square feet in its Kiel plant where a product line of equipment is manufactured for the paper and converting industry. Various types of paper bag machines and related paper converting equipment is made for firms throughout the world.

Stein Hall & Co., Inc., New York, has two new adhesive sales representatives in the south and mid-west.

Otis Langley, Jr., assigned to the company's Atlanta branch sales office will call on integrated paper mills in the south. He will specialize in the sales of various types of resin, latex and modified starch adhesives particularly emphasizing the needs of the paper bag manufacturers. His territory includes Georgia, Alabama, Mississippi, Louisiana, Arkansas, and Florida.

Mr. Langley was formerly with Bemis Brothers Bag Co., Magazine Point, Mobile, Ala.

Keith Miller has joined the Adhesive Department of Stein Hall as an adhesive and food sales representative. He will be assigned to the company's St. Louis branch sales office and will live in Kansas City. Mr. Miller as formerly with Swift & Co. in St. Louis.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Apr. 16	Apr. 23	Apr. 30	May 7	May 14
1960	97.3r	94.5r	99.7	97.3r	97.1
	Apr. 18	Apr. 25	May 2	May 9	May 16
1959	95.8	95.4	95.0	95.9	97.6

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.7	97.9	98.3	96.9‡	—	—	—	—	—	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	94.0

‡ Preliminary

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.4	93.8	97.0	101.5	95.2	88.5	91.9	97.6
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	94.0	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Apr. 16	Apr. 23	Apr. 30	May 7	May 14
1960	95	86	92	93	94
	Apr. 18	Apr. 25	May 2	May 9	May 16
1959	95	93	94	94	96

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	93	92	—	—	—	—	—	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	97	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING May 14, 1960	LAST WEEK ENDING May 7, 1960	CUMULATIVE TO DATE Jan. 1 to May 14, 1960, incl.
% Activity	94%	93%	93%
Total	311,066	312,547	5,973,079
Containerboard—Domestic Use	157,686	154,711	3,056,454
Liner	104,204	99,975	2,035,307
Corrugating Material	47,390	49,044	921,929
Chip & Filler Board	6,092	5,692	99,218
Boxboard—Domestic Use	102,672	97,240	1,879,121
Folding	62,189	58,003	1,123,310
Set-Up	11,056	11,366	216,244
Special Food Board	29,427	27,871	539,567
Other Paperboard	50,708	60,596	1,037,504
Containerboard Type	22,184	31,004	490,115
Boxboard Type	28,524	29,592	547,389
Total Orders			
Received	303,573	345,576	
Unfilled End of Week	468,803	475,187	

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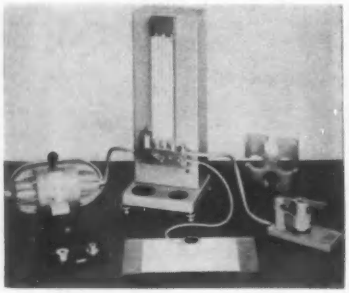

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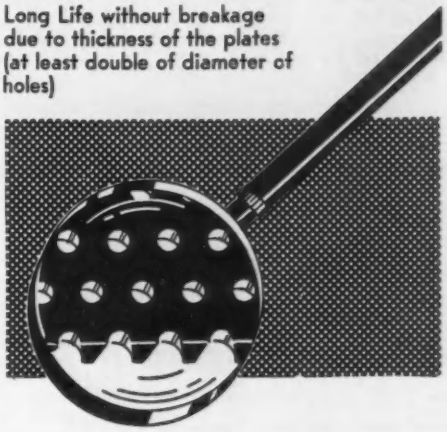

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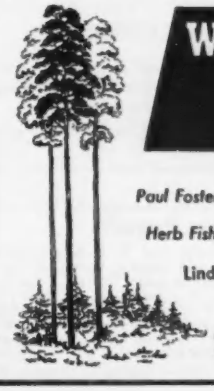

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For applications research on chemicals for new bleaching procedures and new or improved pulping processes. Challenging opportunity to apply theoretical and practical background for development of new and improved methods and for solving important customer problems. Includes research laboratory work and contacts with customers. Prefer applicants with 1 to 10 years experience in paper or cellulose chemistry.

Complete benefit plans. Location in Central New York near the attractive Finger Lakes Area, the Adirondack Mountains, and the Thousand Islands.

Send detailed résumé indicating salary requirement to:

Director of Research
Allied Chemical Corporation
Solvay Process Division
Syracuse 1, New York

M-30

WANTED: Tour Boss for two machine high grade folding box board mill in New England Area. Apply Box 60-107 care Paper Trade Journal. J-13

PAPER MILL ENGINEERS

Graduate Mechanical Engineers with at least 2 years pulp and paper mill experience. Work involves design, equipment layout, and project coordination of paper mill projects and related work.

MECHANICAL ENGINEERS

Graduate Mechanical Engineers to age 35. Duties include piping design, ventilation design, and equipment layout. Prefer applicants with 2 to 5 years pulp and paper mill experience, although others will be given serious consideration.

ELECTRICAL ENGINEER

Graduate Engineer to age 35 with minimum of 2 years heavy industrial experience required. Work involves designing industrial power systems, drawing up specifications necessary in revamping existing industrial electrical systems, cost estimation, and equipment selection.

CIVIL ENGINEER

Graduate Civil Engineer to age 35 with at least 2 years experience in structural and/or concrete design. Should be able to follow design work as required for completion of heavy industrial buildings and foundations.

All of the above positions are permanent. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement, and vacation programs established. All replies will be treated in confidence. Submit resume of experience and qualifications to:

BOWATERS

Industrial Relations Department

Calhoun, Tennessee

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Help Wanted

Product Development

Large paper mill in Maine has immediate opening for a technically trained college graduate for pilot plant phase of specially coated paper development. Position entails work on all phases of product development from laboratory to commercial operation. Knowledge of basic chemistry, physics and mechanics necessary because of wide diversity of problems. Must be able to communicate through both oral and written detailed reports. Previous experience in coated paper field desirable but not essential.

Send resume to

BOX #60-105 CARE
PAPER TRADE JOURNAL

M-30

PLANT MAINTENANCE SUPERINTENDENT or ENGINEER

full time position, for a paper mill located in western Massachusetts. Some paper mill experience required. Submit resume giving all details, which will be kept confidential, to Box Number 60-111 care Paper Trade Journal. J-13

CHEMICAL ENGINEER

Large manufacturer of specialty items in southeastern Massachusetts has attractive opening for chemical engineer with 3 to 10 years experience in paper or allied field. Position is in process development section of plant employing over 500. Send replies to Box #60-109 care Paper Trade Journal, giving information on training, experience and salary desired. M-30

EQUIPMENT DESIGN & DEVELOPMENT ENGINEER

A whole new area of paper-making equipment design and a fresh new approach! For a leading role in a New Division we seek an aggressive, creative engineer uninhibited by traditional ways of doing things and accustomed to personally working from fundamentals to functioning apparatus (Opportunities for mechanical designers too.).

Send your resume to Box 60-115 care Paper Trade Journal.

J-6

DESIGNER-ENGINEER

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Send resume. Box 60-114 care Paper Trade Journal. J-6

PAPER CHEMIST

Paper chemist experienced in formulation for specialty writing and printing papers to customer specification. Must be familiar all commercial sizing, loading materials, and dyestuff. Color control most important. Small mill, modern laboratory, good working conditions, west coast. Salary open negotiation. Write to Box 60-98 care Paper Trade Journal. M-30

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BAG MACHINERY
1—S&H 3½" to 10¼" face; 6" to 13" tube pull

BAG MACHINERY—MULTI-WALL
1—Potdevin 1 & 2 ply tuber; 5¾" to 14" face; 10¼" to 33" pull; w/motor & elec eye
1—Potdevin Bottomer 2" to 4¼" width; w/motor & conveyor
1—S&W 1 to 4 ply tuber; PV, SOM, & POM; 10" to 24" face; 22" to 43" pull; w/15 hp VS drive

BEATERS
2—3000# Downingtown w/60" face x 67" dia roll; like new

CALENDER STACKS
1— 80" P & J 7 roll; heavy duty
2— 82" & 86" Lobdell five roll
1—115" B-C 7 roll
2—124" Downingtown 5 roll & 6 roll

CHEST AGITATORS
2—New Shartle vertical w/3 sets propellers & Falk 40 h.p. right angle drive

CHIPPERS
1— 88" Murray 10 knife w/600 hp motor
1— 96" Murray 6 knife; A-F Brng.

COATERS
1— 24" Waldron Coater & Embosser
2— 40" Chapman Extrusion Type
2— 65" & 76" Mayers

COMPLETE MACHINES
3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Fourdrinier paper machine
1—P&J 74" trim single cyl felt machine

CYLINDER MOLDS
2— 63" face x 36" dia w/rubber couches
1—104" face x 36" dia
1—107" face x 48" dia; A-F Brng
8—124" face x 36" dia w/rubber couches
1—131" face x 42" dia; A-F Brng
1—136" face x 54" dia; SS covering

CYLINDER WET ENDS
Downingtown single cylinder; 99" face x 48" dia.; 18" dia. couch

DRYERS—HYDROSTATICALLY TESTED

24" Dia.:
39—46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
3— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
3— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face
2— 46" face
4— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
1— 74" face w/gears & bearings
3— 75" face w/gears & bearings
9— 76" face w/gears & bearings
1— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
18— 90" face; complete section
9— 92" face; complete section
1—138" face
10—160" face

42" Dia.:
1—120" face
1—160" face

48" Dia.:
57— 46" face; chrome plated
13— 82" face; complete section
5— 84" face
9—110" face w/frames & bearings
10—123" face w/gears, frames & bearings
1—128" face

DRIVES—ENCLOSED RIGHT ANGLE
1—Beloit 65 h.p. Ratio 2.88 to 1
4—Jones 65 hp Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
1—Phila. 25 h.p. Ratio 10.56 to 1
1—50 h.p. Reliance VS with MG set & controls

EMBOSSERS
1— 80" Hudson Sharp; A-F Brng
2— 62" Textile Machinery Co; w/drives

EXTRACTOR ROLLS—DOWNINGTOWN
2—139" face x 24" dia.; A-F Brng.
1—128" face x 24" dia.; Complete Section

FILTERS—STEEL VATS
1— 10' face x 8' dia Oliver chem. sludge filter

FLAT SCREENS
2— 12 Plate IMPCO w/Dunbar Drives
1— 4 plate Tailing Screen

"HYDRAPULPER"
1—Dilts 16 ft. complete w/125 h.p motor, elec. hoist & oil pump

INLETS & HEADBOXES
1—106" Valley w/8" distributing roll
1—131" Valley w/10" distributing roll, SS lined

JORDANS
2—Appleton #1 w/A-F Brng
1—Miami #6 w/250 hp motor; A-F Brng
1—N & W Pony w/75 h.p motors
1—Horne w/AF Brngs
5—Shartle Miami #2 w/A-F Brngs

MOTORS 3 PH 60 CYCLE
1—100 hp GE; 440 v; 695 rpm
1—300 hp West; 2200 v; 503 rpm
1—350 hp GE; 2200 v; 720 rpm; Synch
1—1100 hp West; 2200 v; 257 rpm; Synch
1—1500 hp GE; 2200v; 225 rpm; Synch

PAPER MACHINE DRIVES
1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT
1—Lannoye #1 Pulper

PUMPS—OPEN IMPELLER
1—Shartle 10 x 20 Duplex
23—Centrifugal Stock and Water Pumps

REELS
1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—109" two bowl upright
1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

REFINERS
2—#1 Claflin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new
1—Model 185EM Bauer w/two 150 h.p. motors

ROLL GRINDERS
1—124" x 30" Farrel w/crowning device
1—208" x 32" Farrel w/crowning device

ROLLS

Distributor—Stainless Steel
2— 8" dia. x 115" face
1— 6½" dia. x 115" face

Couch—Rubber Covered
20 Misc. Sizes Dwngs Available

Press—Rubber or Brass Covered
71 Miscellaneous sizes. Drawings available

Felt—Steel, Brass, Rubber Covered
335 Miscellaneous sizes. Drawings available

Calender—Chilled Iron
72 Miscellaneous sizes. Drawings available

ROTARY SCREENS
5—Bird #3A, Model 100 w/copper vats
1—Jones & Leithwalk copper lined

SAVEALLS
1—48" face x 42" dia; iron end vat
1—78" face x 48" dia; wood vat

SHEETERS
1— 36" Beck w/layboys & backstand
1— 45" Beck w/backstand & jogger
5— 56", 60", & 70" Hamblets w/backstands
1— 65" Kidder w/ elec. eye and layboy
1— 76" Beloit Duplex
1— 82" Hamblet w/backstand
1—105" Hamblet
1—112" Downingtown Duplex Board Cutter; A/F Brng

SLITTERS AND REWINDERS

24" Maximum Rewind Diameter
3— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5

30" Maximum Rewind Diameter
1— 60" Langston Shear Cut
1— 62" Cameron Type 6
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F

36" Maximum Rewind Diameter
1— 52" Johnstone Model 14H; A-F Brng.
1— 62" Cameron Type 8
1— 70" Variable Speed Center Winder
1— 72" Cameron Type 10; A-F Brng

42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
1— 92" B & S; A-F Brng
1—136" Cameron Type 18; A-F Brng
1—156" Cameron Type 18 w/60 hp Reliance VS Drive

48" Maximum Rewind Diameter
1— 82" Langston Shear Cut; A-F Brng
1— 86" M & W Four Drum Shear Cut
1—110" Langston
1—152" Langston Shear Cut

60" Maximum Rewind Diameter
1—112" Cameron Type 18
1—120" M & W two drum w/75 h.p. drive
1—120" Langston
1—136" Langston Type DA Shear Cut; A-F

SLITTERS & REWINDERS—DOUBLE REWIND

24" Maximum Rewind Diameter
2—48" Langston Shear Cut

30" Maximum Rewind Diameter
1—42" Essex Shear Cut; A-F Brng.
1—42" Cameron Type 28-3
1—92" Cameron Type 28-3 w/vari-drive

STOCK CLEANERS
2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2" & 6" bronze
1—Bird Dirtec 12". Rebuilt by Bird

STOCK REGULATORS
2—Braemer SS; 25 t/d cap
1—Braemer SS; 50 t/d cap

SUPERCALENDERS
2— 30" Norwood 4 roll
2— 63" Norwood 8 roll; A-F Brng
1— 92" Norwood 7 roll w/drive

SUCTION EXTRACTOR ROLLS—DOWNINGTOWN
1—105" face x 19" dia.
1—126" face x 22" dia.; complete section
1—134" face x 20" dia.; A-F Brng.

SUCTION PRESS SECTIONS
1—126" face x 24" dia. RC; complete section
1—134" face x 22" dia. Sandusky w/frames, top roll, etc.

TRIMMERS—POWER BACK GAUGES
2— 38" Seybold w/motors
1— 57" Seybold Precision
3— 65", 74", & 84" Seybold Daytons

VACUUM PUMPS
8—H-4, ½H-5, & H-5 Nash
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Ames Company Inc. ..... —
Anglo American Clays Corp. . 44
Anglo Paper Products Ltd. .. 7
Annin Company ..... —
Antara Chemicals, Sales Div. Gen. Aniline & Film Corp. .. —
Apmew, Inc. ..... —
Appleton Machine Co. ..... —
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Armco Drainage & Metal Prod. Co. ..... —
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Bauer Bros. Co. ..... —
Becco Chem. Div. Food Machy. Corp. ..... —
Beloit-Eastern Corp. ..... —
Beloit Iron Works Co. ..... —
Binet, Louis et Cie ..... —
Bird Machine Co. 15
Bixby, R. W., Inc. ..... —
Black-Clawson Co. ..... —
Bolton & Sons ..... —
Brandon Sales, Inc. ..... —
Broughton, A. E. & Co. ..... —
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Cameron Machine Co. ..... —
Carthage Machine Co. ..... —
Celgar Ltd. ..... —
Cellulose Development Corp. ... —
Central Soya Co. ..... —
Cesalpinia S.P.A. ..... —
Ciba Company ..... —
Clark-Aiken Company ..... —
Classified Advertising 46
Clearing House 46
Cleveland Crane & Engrg. Co. —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. ..... —
Combustion Engrg. Co. ..... —
Corn Products Sales Co. ..... —
Curtiss-Wright Corp. ..... —

Darling & Company ..... —
Davis, Frank H., Co. Inc. .... —
De-Zurik Corporation ..... —
Diamond Alkali Co. ..... —
Dobeckmun Company ..... —
Dodge Mfg. Co. ..... —
Dorr-Oliver ..... —
Dow Chemical Co. ..... —
Dow Industrial Service Div. Dow Chemical Co. ..Cover 2
Doyle, J. E., Co. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. 7
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. ..... —
Electrochemical Dept. ..... —
Industrial & Biochem. Dept. —
Pigments Dept. ..... —
Duverre Inc. ..... —

Eaton Manufacturing Co. .... —
Ebasco Services, Inc. ..... —
Economy Equipment Co. .... —
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Electric Eye Equip. Co. .... —
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Elixman Paper Core Co. .... —
Evans, W. P. & Son, Ltd. .. —

Falk Corporation ..... —
Farrel-Birmingham Co. ..... —
Finckh, Herman 45
Fitchburg Screen Plate Co. . —
Food Mchy. & Chem. Sales Dept., Chemicals & Plastics Div. ..... —
Food Mchy. & Chem. Corp., Chlor-Alkali Div. ..... —
Foxboro Co. ..... —

Garlock Inc. ..... —
Gaspesia Sulphite Co. Ltd. .. —
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General Electric Co. ..... —
General Mills, Inc. ..... —
General Tire & Rubber Co. .. —
Gibbs-Brower Co. ..... —
Gilbert & Nash Co. ..... —
Glidden Company .....Facing 34
Goodyear International Corp. ..... —
Goodyear Tire and Rubber Co. —
Gottesman-Central National Org. .....Front Cover
Goulds Pumps 17
Great Eastern Packing & Paper Stock Corp. ..... —
Green, Inc., Frank B. ..... —
Grinnell Co., The ..... —
Gurley W. & L. E. ..... —

Hamblet Machine Co. ..... —
Hardinge Company ..... —
Harbison Walker Refractories —
Harris Seybold ..... —
Harshaw Chemical Co. ..... —
Hayssen Mfg. Company ..... —
Heimbach, Thomas J. ..... —
Hercules Powder Co. ..... —
Hills-McCanna Co. ..... —
Hooker Chemical Co. 6
Houghton & Company ..... —
Huber, J. M. Corp. 4
Hudson Sharp Machine Co. ... —
Hungerford & Terry, Inc. .. —
Hunt, Rodney ..... —
Huyck Felt Company ..... —

Improved Machinery, Inc. ... —
Industriplanering ..... —
Ingersoll-Rand Co. ..... —

Jagenberg Werke ..... —
Jenkins Brothers ..... —
Johns-Manville Corp. ..... —
Johnson Corp., The ..... —
Johnson, Alvin H., Co. ..... —
Jones, E. D., Corp. 27

Kalamazoo Tank & Silo Co. ... —
Kamyr, Inc. ..... —
Karlstads Mekaniska Werkstad —
Kellogg, M. W., Company .....Facing 35
Kenyon, James & Son ..... —
Kidder Press Co. ..... —
Knox Woolen Co. 49
Koppers Co., Inc. ..... —

Langston, Samuel Co. ..... —
La Papeterie 35
Laporte Titanium Ltd. ..... —
Lawson Company ..... —
Layton-Greenfield Inc. ..... —
Lestoil, Inc. ..... —
Link-Belt Co. ..... —
Lockport Felt Co. ..... —
Lockwood Trade Jl. ..... —
Lockwood Greene Engineers .. —
Lodding Engineering Co. 3
L'Homargy ..... —
Lukon, Inc. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —

Magnus Metal Corp. ..... —
Main, Charles T., Inc. 33
Manchester Machine Co. ..... —
Marathon—A division of American Can ..... —
Mead Pulp Sales, Inc. ..... —
Mercury Engrg. Corp. Cover 3
Miehle-Goss-Dexter ..... —
Miller Corp., Harry ..... —
Millspaugh, Ltd. ..... —
Minerals & Chem. Corp. .... —
Minneapolis-Honeywell ..... —
Mixing Equipment Co. ..... —
Monsanto Chemical Co. ..... —
Montague Mch. Co. ..... —
Moore & White Co. ..... —
Morden Machines Co. ..... —
Mt. Vernon Mills Inc. ..... —
Murray, D. J., Mfg. Co. ..... —

Nalco Chemical Co. ..... —
Nash Engineering Co. ..... —
National Gypsum Co. ..... —
National Lead Co., Magnus Metal Div. ..... —
National Perforating Co. ..... —
National Starch & Chem. Corp. —
National Tube Div., U. S. Steel Inc. ..... —
New Jersey Zinc Co. ..... —
Nichols Eng. & Research Corp. —
Nopco Chemical Co. 37
Northeastern Paper Sales 7
Norton Co. ..... —
Northwest Paper Co. ..... —

Oakite Products Inc. ..... —
Olin Mathieson ..... —
Osborne Paper Mill Equipt. Co. —
Overly's Inc. ..... —

Paper Conv. Mch. Co. ..... —
Parsons & Whittemore ..... —
Patton Mfg. Co. ..... —
Penick & Ford ..... —
Penn. Ind. Chem. Corp. ..... —
Penobscot Chemical Fibre Co. . —
Pennsalt Chem. Corp. ..... —
Perkins, B. F. & Sons, Inc. .. —
Perkins Goodwin Co. ..... —
Permutit Co., Div. of Pfaudler Permutit Inc. ..... —
Pfaudler Permutit Inc., Permutit Div. ..... —
Pioneer Paper Stock Co. .... —
Potdevin Machine Co. 45
Powell Valves ..... —
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Radcliffe Engineering Co., Ltd. ..... —
Raymond, Charles P., Service Inc. ..... —
Record Fdy. & Mch. Co. .... —
Red Ray Mfg. Co. ..... —
Reichhold Chemicals ..... —
Rhoads, J. E., & Sons .... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Robbins Instrument Co. 44
Rockwood Sprinkler Co. ..... —
Rocky River Paper Mill Inc. . 44
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Rosenblad Corp. ..... —
Ross, J. J., Co. 48
Ross, J. O., Engrg. Co. ..
Ross Midwest Fulton Corp ..
Ross Paper Machinery Co. .. 47
Ruderman Machinery Exchange ..... —
Rust Engineering Co. ..... —
Ryerson, Jos. T. & Son 12

Sandy Hill Iron & Brass Works ..... —
Scapa Dryers Inc. ..... —
Scott Testers 44
Seaboard Air Line R. R. Co. 11
Shawinigan Resins Corp. .... —
Sheffield Corp. ..... —
Shuler & Benninghofen ..... —
Signode Steel Strapping Co. .. —
Sinclair Company ..... —
Sirvine, J. E., Co. ..... —
SKF Industries ..... —
Smidth, F. L., & Co. ..... —
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Staley Mfg. Company ..... —
Stebbins Engrg. Co. ..... —
Stein, Hall & Co. ..... —
Stephens-Adamson Mfg. Co. ..... —
Stevens, Inc., Charles R. .... —
Stone & Webster Eng. Corp. . —
Stowe-Woodward, Inc. 8
St. Regis Paper Co. ..... —
Sunday, George M., Assoc. ... 46

Taylor Instrument Co.'s ..... —
Taylor-Wharton Company .... —
Technical Translation Bureau —
Techno Corp. ..... —
Tennessee Coal & Iron Co. .. —
Tennessee Corp. ..... —
Texaco, Inc. ..... —
Texas Gulf Sulphur ..... —
Thermal Equipt. Corp. ..... —
Thiele Kaolin Co. ..... —
Thiry & Company ..... —
Thomas Paper Stock Co. ..... —
Titanium Pigment Corp. .....Back Cover
Torrington Company 10
Turner Halsey Co. ..... —
Tyer Rubber Company ..... —

United Engrg. & Fdy. Co. ... —
Universal Metal Hose Co. ..... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corp. .....40 & 41
U. S. Rubber Company ..... —
U. S. Steel Corp. ..... —
United States Steel Export .. —
United States Steel Supply Co. —

Valley Iron Works ..... —
Vanderbilt, R. T., Co. ..... —
Virginia Smelting Co. ..... —
Voith, J. M., G. m. b. H. .... —

Waldron-Hartig Div., Midland Ross Corp. ..... —
Walworth Co. ..... —
Weber, H. G., Company ..... —
West End Chemical Div., Stauffer Chem. Co. ..... —
West Virginia Pulp & Paper Co. ..... —
Weverhaeuser Co. ..... —
Williams-Gray Co. 45
Wisconsin Wire Works ..... —
Witco Chemical Co. ..... —
Woodpulp, Inc. ..... —
Wyandotte Chem. Corp. ..... —

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